Rapid Assessment of the Short-Term Risk of Pharmaceutical Shortage in Iraq

November 2003

Prepared for:

CPA/MOH
under IHSS Project funded by USAID

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SUMMARY

At the request of the CPA/MOH, funded by the United States Agency for International Development (USAID), the Iraqi Health System Strengthening Project (IHSSP) performed a rapid assessment of the risk of drug stock-outs at the national warehouses in Iraq, with an objective to identify the gaps between drug supply and demand and recommend short-term mitigation measures to reduce the gaps.

Based on expert consultations and the predetermined criteria, 30 drug items were selected for analysis. It was found that 10 of the selected 30 drugs (33) have high risk of stock-outs, which include 3 anti-cancer drugs and 7 general drugs. These drugs not only have the risk of stock-outs in the coming three months, but also have the potential of extended months of stock-outs due to lack of a new procurement contract.

There are 9 drugs (30%) with medium risk of stock-outs. These drugs have predicted risk of stock-outs in the coming three months, but new procurement contracts have been issued either through the Oil For Food program (OFF) or by Kimadia. Eleven other drugs (37%) have no predicted risk of stock-outs in the coming three months, although Kimadia reported such a risk.

The predicted stock-outs are not a consequence of the phasing-out of OFF, but rather much of the risk is due to the previous failures to maintain necessary drug inventories. It was found that drugs with stock-outs in previous months of the year are more likely to have stock-outs in the coming three months. Overall, 90% of the drugs with predicted future stock-outs had experienced stock-outs in previous months; and none of the drugs without predicted future risk of stock-outs had stock-outs in previous months.

Based on the findings of the assessment we recommend the following major short-term mitigation measures:

(1) For those drugs with risk of stock-outs in the coming three months and with new procurement contracts signed, CPA/MOH will need to contact the manufacturers to actively explore the possibility to expedite the delivery of procured drugs, rather than passively waiting for the their arrivals;
(2) For those drugs with risk of stock-outs in the coming three months and without new procurement contracts, CPA/MOH will need to perform emergency procurement, by which CPA/MOH doesn't have to follow the normal procedures of tendering and competitive bidding, but rather it should contact its regular and reliable manufacturers for sole-source procurements;
(3) The time needed for testing of the drugs needs to be shortened by waiving the drug tests for those that have been approved by FDA and EU and by contracting-out drug tests for other drugs with specified short periods of time;
(4) A drug sharing mechanism should be developed to deal with stock-outs. Governorate warehouses and health care facilities should be mobilized to allow for sharing their drug reserves when there are stock-outs at central level;
(5) There is a need to perform more comprehensive assessments, which should cover the governorate level and all essential drugs.

1. INTRODUCTION

Pharmaceutical procurement and distribution in Iraq is facing new challenges: Oil For Food (OFF) program will be ending on November 21, 2003; a major financing source from OFF will be terminated; and logistic supports for procurement, storage and distribution of drugs and supplies from UN agencies will be withdrawn and transferred to the Coalition Provisional Authority/Ministry of Health (CPA/MOH).

The major concerns associated with the above transition are:

- What will be the potential impact of this transition on the inventory and distribution of essential drugs on the exiting drug list?
- What is the potential risk of shortage or stock-outs of essential drugs and vaccines?
- What are the mitigation measures to avoid any potential shortages of these drugs?

At the request from the CPA/MOH, and funded by United States Agency for International Development (USAID), the Iraqi Health System Strengthening Project (IHSSP) performed a rapid assessment to answer the above-stated questions.

2. OBJECTIVES

The general objective of this assessment is to understand the potential risk of drug stock-outs and find short-term mitigation measures. Specifically, this assessment is:

- To predict the changes in supply of drugs and vaccines
- To estimate the potential gaps between supply (inventory) and demand (estimated need)
- To recommend mitigation measures to fill the potential gaps (shortages)

Given the urgent need for assessment results (before phasing-out of the OFF) and the rapid assessment nature of this investigation, this study has focused on:

- Short-term risk of drug stock-outs (e.g., the risk of stock-outs within three months after termination of OFF)
- Current available essential drugs and vaccines, which are considered by Kimadia to have the highest risks
- Negative impacts
- National level estimation, in terms of procurement, inventory and distribution.

3. METHODS

3.1 Selection of Drugs

The list of drugs with risk of stock-outs was obtained from Kimadia. The total number of these of drug and vaccine items is about 250, including:

- Chronic disease drugs: 25 items
- Anti-cancer drugs: 26 items
- General drugs: 193 items
- Vaccines: 6 items

Because the items on the list are too numerous, and is beyond the analytical capacity for the available data and time, we worked out a shorter list of drugs according to the following criteria:

- Drugs with highest risk of stock-outs as reported by Kimadia
- Vital drugs (life saving drugs) --- if there is a stock-out, the life of the patient will be in danger (e.g., insulin)
- Drugs without substitutes
- Drugs not available in the private market, or available but not accessible because of unaffordable price
- Cost-effective drugs --- there is strong evidence of efficacy, and the cost is affordable
- Coverage --- the shortlist covers major categories of drugs
- Essentiality --- according to disease control policy, the interventions must be available all the time (eg vaccines)
- Data availability --- some of the drugs meet the above criteria, but data were not available. They were finally excluded from analysis.

During field visits, we identified some drugs with significant over-supply, two items of which are included in the assessment. The list of drugs which entered into this assessment include 32 items, which are specified as follows (note that selected drugs are numbered consistently throughout the analysis so that the readers can identify drugs by the these numbers):

Chronic disease drugs (11 items):

(1) Isosorbide dinitrate 10 mg tab.
(2) Metformin 500 mg tab
(3) Metformin 850 mg tab.
(4) Insulin lente vial
(5) Throxine 50 mcg tab
(6) Thyroxine 100 mcg tab
(7) Depakine 200 mg tab
(8) Depakin drops
(9) Clonazepam 0.5 mg tab
(10) Propranolol 40 mg tab
(11) Salbutamol Inhaler

Anticancer drugs (3 items):

(12) Cyclosporin cap 100 mg
(13) Methotrexate tab 2.5 mg
(14) Folinic acid tab 15 mg

General drugs (10 items):

(15) Benzathine penicillin 600 000 u
(16) Benzathine penicillin 1200 000 u
(17) Acyclovir 200 mg, Cap.
(18) Erythromycin 250 mg, Susp.
(19) Ciprofloxacin 500 mg. tab.
(20) Methylprednisolone 40 mg. vial
(21) Albandazole 100 mg. Susp.
(22) Albandazole 200 mg tab.
(23) Haloperidol 1.5 mg tab.
(24) Anti D vial

Drugs with over supply (2 items):

(25) Glibenclamide 5 mg, tab.
(26) Nifedipine, 10mg cap

Vaccines (5 items):

(27) Measles
(28) Polio (OPV)
(29) DTP
(30) BCG
(31) Rabies vaccine
(32) Rabies anti-serum

3.2 Data and their sources

Data included estimated needs for drugs, quantity distributed, historical and current inventories, and future procurements. Data were collected using pre-designed instruments (see Appendix 1)

Estimated needs for drugs:

The estimated national need for drugs in 2003 (Kimadia uses the term "estimated demand") is obtained from the Department of Development of Kimadia. This estimated annual need for a drug serves as a reference for procurement and distribution. Usually, the estimated need is adjusted after the first 6 months of a year according to the amount requested by governorate warehouses.

The estimated monthly need was calculated by dividing the total estimated national need by 12 months.

Quantity distributed:

The monthly distribution, or actually distributed quantity of a drug is obtained from Department of Drugs (Unit of Drug Distribution), Department of Storage, and Institute of Vaccines. All data on chronic disease drugs, anti-cancer drugs, and general drugs available in electronic copy. Data for vaccines were obtained from manual records.

Historical and current inventories:

Inventory quantity data for the selected drugs, by month, were mainly obtained from Department of Storage, and Institute of Vaccines. The office of the World Health Organization provided the rest of the data.

Future procurements:

Data included the absence or existence of procurement contracts, the quantity of a drug being procured, and the estimated date of arrival. These data were obtained from the Department of Drugs (Unit of Importation), Department of Prevention, and the WHO representative in Baghdad.

3.3 Definition of terms and period of analysis

Stock-outs --- The situation in which the inventory of a drug is less than its estimated monthly need. It is deemed to be inappropriate to define it based on the difference between inventory and the quantity distributed because drug stores usually ration the quantity of distribution when there is a potential risk of drug shortage.

Estimated need --- The sum of reported needs for a drug from all governorates. In practice, all health pharmacies (both public and private, and at all health facilities) report the estimated need for the next year, and then the Department of Development (Unit of Forecasting) produces the estimated need for a drug, which will be used as a reference for procurement.

Inventory --- The quantity of a drug available at the national warehouses at the end of a month.

Distributed quantity --- The sum of the quantity of a drug actually distributed to all warehouses at the governorate level.

The period of analysis ---- Depending on data availability, it covered a period from January 2003 to January 2004. The whole period was divided into three sub-periods: (1) months before OFF is phased-out (from January 2003 to October 2003); (2) months during and right after OFF is phased-out (from November 2003 to January 2004); (3) months after January 2004. According to the original scope of work, the second sub-period is the focal period of analysis.

4. RESULTS AND DISCUSSIONS

The results of risk assessment for each of the selected drugs and vaccines are presented in Tables 1 to 32, and Figures 1 to 32. To avoid presenting the results for each of them in great length, we choose to summarize the results in Table 33 (PART I and PART II).

Table 33 shows the summarized status of stock-out risk for each of the three sub-periods of analysis, and for each of the selected drugs. As indicated by the number of "*" in the far left column of the table, the selected drugs are divided into 4 categories according to the risk of stock-outs in the coming three months (November, December, and January):

> Category 1 (high risk, with **** in the table) --- there will be stock-outs in some or all three months (Nov, Dec and Jan); and there is no new procurement until now.
>
> Category 2 (medium risk, with *** in the table) --- there will be stock-outs in some or all three months (Nov, Dec and Jan); new procurement has been initiated, and the drug will arrive in about 2 months.
>
> Category 3 (low risk, with ** in the table) --- there are no stock-outs during the three months (Nov, Dec and Jan), but there will be stock-outs after January 2004, because of the lack of new procurement (later we found that there are no drugs belonging to this category).
>
> Category 4 (no risk, with * in the table) --- there is enough inventory for all three months (Nov, Dec and Jan), and the subsequent 2 months.

4.1 Drugs with high risk of stock-outs

The analysis shows that 10 of the 30 drugs and vaccines (or 33% of the selected drugs) have the high risk of stock-outs. They are:

(1) Cyclosporin 100 mg cap
(2) Methotrexate 2.5 mg tab
(3) Folinic acid 15 mg tab
(4) Benzathine penicillin 600 000 u
(5) Acyclovir 200 mg, cap.
(6) Erythromycin 250 mg, susp.
(7) Ciprofloxacin 500 mg. tab.
(8) Albandazole 100 mg. susp.
(9) Albandazole 200 mg tab.
(10) Anti D vial

However, as Table 33 shows, it is hard to say that the risk of stock-outs in the coming months is associated with the phasing-out of OFF, because a majority of these drugs, except for two (Ciprofloxacin and Albandazole), had months of stock-outs even before the phasing-out of OFF.

This category of drugs needs special attention not only because of the risk of stock-outs in the coming three months, but also because of the potential for extended months of stock-outs due to the lack of a new procurement contract, to fill the gaps between demand and supply.

4.2 Drugs with medium risk of stock-outs

There are 9 drug items with medium risk of stock-outs, which represent 30% of the selected drugs. They are:

(1) Isosorbide dinitrate 10 mg tab.
(2) Insulin lente vial
(3) Depakin drops
(4) Clonazepam 0.5 mg tab
(5) Throxine 50 mcg tab
(6) Thyroxine 100 mcg tab
(7) BCG
(8) Rabies vaccine
(9) Rabies anti-serum

Interestingly, all these drugs and vaccines had stock-outs ranging from 1 month to as many as 10 months (see Table 33 for detail) before the phasing-out of OFF. Another characteristic of these drugs is that new procurement contracts have been issued either through OFF or by Kimadia itself. The expected stock-outs will be filled once the new procurement arrives. However, the expected period of stock-outs is not certain because the date of procurement arrival is not sure (contract manager of Kimadia and OFF reported that the drug will arrive in about 2 months, and maybe between 1 and 3 months), and also because the time estimated for drug quality control (Lab test) is not accurate.

Previously, it needed 1-2 months for the testing of drugs once they arrived at the Kimadia stores. Due to looting, the lab for testing drugs is not working. We are not quite sure whether there will be a need for testing these newly contracted drugs.

4.3 Drugs with no risk of stock-outs

As revealed by this assessment, not all drugs reported by Kimadia, actually have such as risk. It was found that 11 (or 37%) out of the 30 drugs with reported risk have no risk of stock-outs in the coming three months. They are:

(1) Metformin 500 mg tab
(2) Metformin 850 mg tab.
(3) Depakine 200 mg tab
(4) Propranolol 40 mg tab
(5) Salbutamol Inhaler
(6) Benzathine penicillin 1200 000 u
(7) Methylprednisolone 40 mg. vial
(8) Haloperidol 1.5 mg tab.
(9) Measles
(10) Polio (OPV)
(11) DTP

There may be two reasons for the inconsistency between the reported risk by Kimadia and the findings of this study. First, after identification of the risk, actions may have been taken, and the gaps between demand and supply may have been filled. Second, there is a question of

data validity, due to which the risk may either have been over estimated by Kimadia, or underestimated by this study. As is shown in Table 33, there are no identified risks of stock-outs for several drugs (e.g., Depakine 200mg tab, and Propranolol 40mg tab), but their distributed quantities have been much less than the estimated need, although there were large reported inventories for these drugs. The reason for this is yet to be investigated.

Interestingly, all these drugs had no reported stock-outs in the previous months of this year, suggesting the positive correlation (association) between previous stock-outs and the risk of stock-outs in the coming few months. Namely, those drugs with previous stock-outs are more likely to be stock-out in the coming months.

4.4 Drugs with over-supply

Two drugs have substantial amount of over-supply --- Glibenclamide and Nifedipine. These two drugs have had over-supply in previous months of this year, and the status of over-supply will continue for the next 6 months. By dividing the total inventory by the estimated monthly need, we estimated that there is at least 10 months of inventory for Glibenclamide, and 25 months of inventory for Nifedipine. These findings suggest poor planning of drug procurement. Also, doctors working in health facilities reported that the over-supply of some drugs is resulted from decreased demand because of poor quality.

Table 33—PART 1. Summary of the Risk Assessment of Drug Stock-outs

No.	Name of drug	Jan, 03 -- Oct, 03	Nov, 03 -- Jan, 04	After January 04
Chronic disease drugs				
1 ***	Isosorbide dinitrate 10 mg tab.	Stock-outs in May and Jun	2 months stock-outs (Nov and Dec)	3 months inventory (new procurement)
2 *	Metformin 500 mg tab	Governorates received no more than ¼ of the need, although there had been large inventory	No risk	8 months inventory (3 month new procurement, and 5 months existing inventory)
3 **	Metformin 850 mg tab.	Despite large inventory, there has been complain of stock-outs at health facilities and stores (data is questionable)	No risk	9 months inventory (3 months new procurement, and 6 months existing inventory)
4 ***	Insulin lente vial	Data not available	1.5 months stock-outs (Nov and Dec)	3 months inventory (new procurement arrives in Jan)
5 ***	Throxine 50 mcg tab	1 month stock-outs (Oct)	2 months stock-outs (Nov and Dec)	3 months inventory (new procurement in Jan)
6 ***	Thyroxine 100 mcg tab	6 months stock-outs (Apr-Oct)	2-3 months stock-outs (Nov, Dec, and maybe Jan)	3 months inventory (new procurement in Jan)
7 *	Depakine 200 mg tab	Distribution has been less than estimated need, although there has been large inventory	No risk	5 months existing inventory
8 ***	Depakin drops	6 months stock-outs (Mar – Oct)	2 months stock-outs (Nov and Dec)	9 months from new procurement
9 ***	Clonazepam 0.5 mg tab	10 months stock-outs (Jan -- Oct)	2 –3 months stock-outs (Nov, Dec, maybe Jan)	3 months from new procurement
10 *	Propranolol 40 mg tab	Distribution has been less than estimated need, although there has been large inventory	No risk	6 months inventory (3 months from new procurement, and 3 months from existing inventory)
11 *	Salbutamol Inhaler	Distributed amount has been much less than estimated need, although there has been available.	No risk	6 months inventory (3 from new procurement, and 3 months from existing storage)
Anticancer drugs				
12 ****	Cyclosporin cap 100 mg		3 months stock-outs (Nov, Dec, and Jan)	No inventory (no new procurement)
13 ****	Methotrexate tab 2.5 mg	2 months stock-outs (Sep and Oct)	3 months stock-outs (Nov, Dec, and Jan)	No inventory (no new procurement)
14 ****	Folinic acid tab 15 mg	There was inventory, but no drug was distributed	2 month stock-outs (Dec and Jan)	No inventory (no new procurement)

Table 33—PART 2. Summary of the Risk Assessment of Drug Stock-outs

No.	Name of drug	Jan, 03 — Oct, 03	Nov, 03 — Jan, 04	After Jan 04
General drugs				
15 ****	Benzathine penicillin 600 000 u	8 months stock-outs (Feb – Oct)	3 months stock-outs (Nov, Dec, and Jan)	No inventory (no new procurement)
16 *	Benzathine penicillin 1200 000 u	Distribution has been less than estimated need, although there has been large inventory	No risk	7 months inventory from existing storage
17 ****	Acyclovir 200 mg, Cap.	7 Months stock-outs (Jan to Jul)	3 months stock-outs (Nov, Dec, and Jan)	No inventory (no new procurement)
18 ****	Erythromycin 250 mg, Susp.	10 months stock-outs (Jan to Oct)	3 months stock-outs (Nov, Dec, and Jan)	No inventory (no new procurement)
19 ****	Ciprofloxacin 500 mg. tab.	Distribution has been less than estimated need, although there has been large inventory	2 months stock-outs (Dec and Jan)	No inventory (no new procurement)
20 *	Methylprednisolone 40 mg. Vial	Distribution has been less than estimated need, although there has been large inventory	No risk	4 months inventory (1 month from existing storage, and 3 months from new procurement)
21 ****	Albandazole 100 mg. Susp.	8 months stock-outs (from Mar to Otc)	3 months stock-outs	No inventory (no new procurement)
22 ****	Albandazole 200 mg tab.	Distribution has been less than estimated need, although there has been large inventory	1.5 month stock-outs (Dec and Jan)	No inventory (no new procurement)
23 *	Haloperidol 1.5 mg tab.	No stock-outs	No risk	12 month inventory from existing storage
24 ****	Anti D vial	10 months stock-outs	3 months stock-outs	No inventory (no new procurement)
Drugs with over supply and over inventory				
25 *	Glibenclamide 5 mg, tab.	Over-supply	No risk (over-supply)	10 months inventory from existing storage
26 *	Nifedipine, 10mg cap	Over-supply	No risk (over-supply)	25 months inventory from existing storage
Vaccines				
27 *	Measles	No stock-outs	No risk	6 months inventory from existing storage
28 *	Polio (OPV)	No stock-outs	No risk	6 months inventory from existing
29 *	DTP	1 month stock-outs in Oct (data not available in previous months)	No risk	8 month inventory (6 months from new procurement, and 2 months from existing storage)
30 ***	BCG	1 month stock-outs (Oct)	1 month stock-outs (Nov)	7 Months inventory
31 ***	Rabies vaccine	10 months stock-outs	2 months stock-outs	4 months inventory from new procurement
32 ***	Rabies anti-serum	10 months stock-outs	2 months stock-outs	4 months inventory from new procurement

5. LIMITATIONS OF THE ASSESSMENT

The interpretation and utilization of the findings of this study should be considered with caution because of a number of constraints of this rapid assessment.

First, given the rapid assessment nature of this study and the time constraint (the study began in early November, and has to be completed before OFF phasing-out in November 21), this investigation could only focus on central level assessment, namely the risk of drug stock-outs at central warehouses in Baghdad. Thus, the findings can only reflect the status of central warehouses; the identified or predicted stock-outs at the central level does not mean there must be stock-outs at governorate warehouses (depending on the existing reserves at governorate stores); and although there is no risk of stock-outs at central warehouses, there may be stock-outs at the governorate level depending on whether the drugs can be delivered to governorates at the right time and in the right amounts. This suggests a need for an assessment at governorate level assessments.

Second, there were 250 drug items reported by Kimadia with potential risk of stock-outs. Given the time and data availability constraints, we were able to focus on only 30 of them. To inform actions to fill the gaps between supply and demand, there will be a need for assessment of all 250 listed drugs.

Third, the validity of the results depends heavily on data validity, which was found questionable. For example, for some drugs: shortage was reported by Kimadia, but data showed that there is no risk; there is a large inventory reported, but there have been shortages at health care facilities and governorate warehouses; and we found some inconsistencies between the same data provided by different sources.

Fourth, data availability has been a major barrier to this study. Some data were not available and this has led to changes in the types of selected drugs. In addition, data collection has been time consuming. To perform this assessment, the investigators have to obtain data from different sources --- distribution departments, warehouses, WHO office, Importation Department, Department of Development ---- and data extraction usually takes a lot of time, especially when the data have to be summarized manually.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Main findings

(1) Not all the drugs reported by Kimadia have predicated risks of stock-outs, and the size of the risk varies depending on the level of demand, current level of inventory, and the existence or absence of new procurement contracts.

(2) There seems to be no association between OFF phasing-out and the risk of stock-outs. It was found that there is an association between stock-outs in previous months of the year and the risk of stock-outs in the coming three months. Overall, 90% of the drugs with predicted future stock-outs had experienced stock-outs in previous months; and none of the drugs without predicted future risk of stock-outs had stock-outs in previous months.

(3) There are 10 out of 30 selected drugs (33%) with high risk of stock-outs in the coming three months (Nov, Dec and Jan). These drugs need special attention not only because of the risk of stock-outs in the coming three months, but also because of the potential for extended months of stock-outs due to lack of new procurement contracts.

(4) There are 9 drugs (30%) with medium risk of stock-outs in the coming three months. These drugs have predicted risk, but new procurement contracts have been issued either through OFF or by Kimadia itself. The expected stock-outs will be filled once the new procurement arrives. The expected stock-out periods depend on the date of procurement deliveries and the time needed for drug quality control (lab tests).

(5) It was found that 11 (or 37%) out of the 30 drugs with reported risk by Kimadia have no predicted risk of stock-outs in the coming three months.

6.2 Recommendations for mitigation of the short-term risks

(1) For those drugs with a risk of stock-outs in the coming three months and with new procurement contracts signed, Kimadia will need to contact the manufacturers to actively explore the possibility of to expediting the delivery of procured drugs, rather than passively waiting for the their arrivals.
(2) For those drugs with risk of stock-outs in the coming three months and without new procurement contracts, Kimadia will need to perform emergency procurement, by which Kimadia doesn't have to follow the normal procedure of tendering and competitive bidding, but rather it should contact its regular and reliable manufacturers for sole-source procurements.
(3) The time needed for testing of the drugs should be shortened by (1) waiving the drug test for the drugs that have already been approved by FDA and EU; and (2) contracting-out the drug tests with specified short periods of time; and (3) expediting the drug testing process when using governmental labs.
(4) Rapid assessments need to be performed at the governorate level, so that once the drugs arrive at the central warehouses, they can be delivered to priority governorates with high risk of stock-outs in a responsive manner.
(5) Drug sharing mechanism should be developed to deal with stock-outs. Given the possibility that when there are stock-outs of drugs at central warehouse, there may be

reserves at some governorate warehouses and some health care facilities. Governorate warehouses and health care facilities should be mobilized to allow for sharing their drug reserves in cases of emergency.

(6) For new procurements, Kimadia needs to accumulate 3 months reserves for all drugs at any point in time.

(7) Kimadia will need to perform rapid assessments for all essential drugs based on the methodology provided in this report, so as to identify all risks of stock-outs and take appropriate actions to avoid them.

Table 1. Demand and Supply of Isosorbide dinitrate 10 mg tab.

Month	Distribution	Need	Inventory
JAN, 03	9,110,120	5,771,591	42,277,270
FEB, 03	5,521,180	5,771,591	38,538,930
MAR, 03	11,351,840	5,771,591	27,187,090
APR, 03	5,720,680	5,771,591	21,466,410
MAY, 03	46,220	5,771,591	21,420,190
JUN, 03	189,140	5,771,591	21,218,050
JUL, 03	7,048,520	5,771,591	14,985,290
AUG, 03	13,311,780	5,771,591	2,143,290
SEP, 03	202,360	5,771,591	1,940,980
OCT, 03	178,300	5,771,591	1,762,680
NOV, 03	1,762,680	5,771,591	0
DEC, 03	0	5,771,591	0
JAN, 04	5,771,591	5,771,591	17,314,774

Figure 1. Demand and Supply of Isosorbide Dinitrate 10mg tab

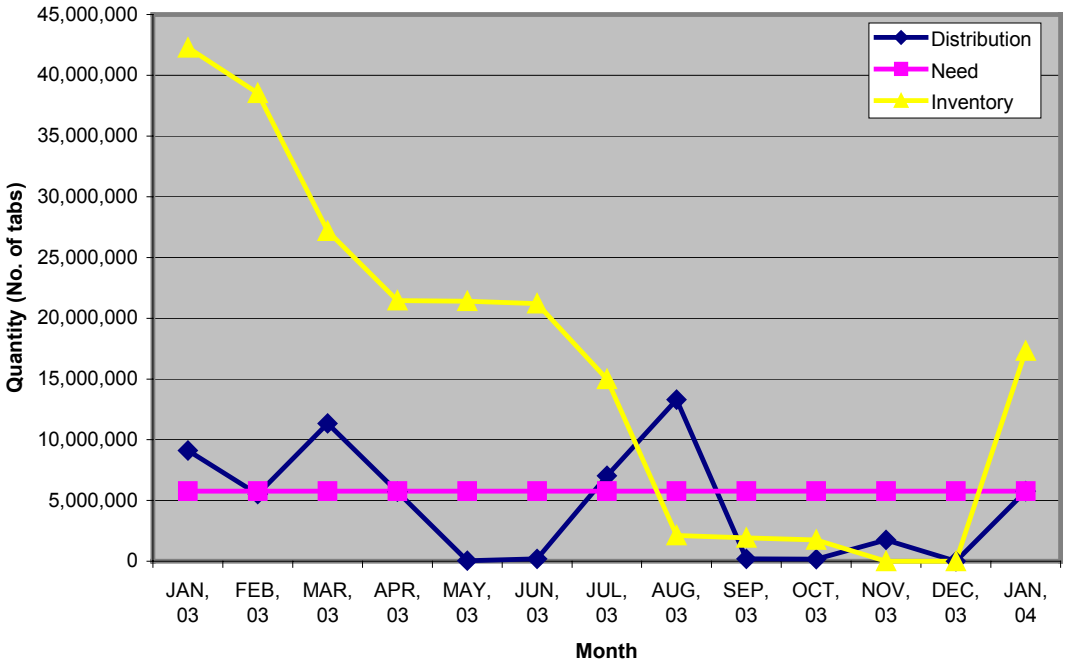


Table 2. Demand and Supply of Metformin 500 mg tab

Month	Distribution	Need	Inventory
JAN, 03	734,600	682,808	7,444,750
FEB, 03	25,100	682,808	7,419,650
MAR, 03	19,900	682,808	7,399,750
APR, 03	1,350,380	682,808	5,857,770
MAY, 03	23,500	682,808	6,025,870
JUN, 03	19,390	682,808	6,006,480
JUL, 03	639,350	682,808	5,367,130
AUG, 03	134,490	682,808	5,260,200
SEP, 03	13,220	682,808	6,005,980
OCT, 03	57,820	682,808	5,948,160
NOV, 03	682,808	682,808	5,265,352
DEC, 03	682,808	682,808	4,582,544
JAN, 04	682,808	682,808	3,899,736

Figure 2. Demand and Supply of Metformin 500mg tab

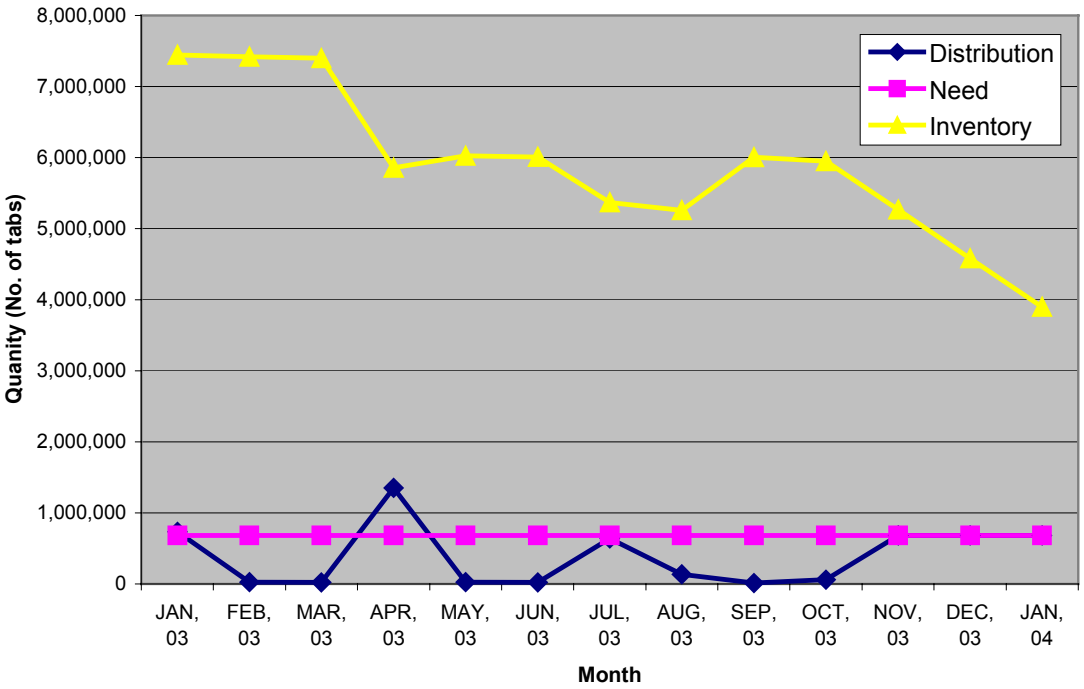


Table 3. Demand and Supply of Metformin 850 mg tab.

Month	Distribution	Need	Inventory
JAN, 03	29,100	214,027	860,900
FEB, 03	517,200	214,027	940,700
MAR, 03	424,800	214,027	615,900
APR, 03	93,000	214,027	522,900
MAY, 03	11,000	214,027	511,900
JUN, 03	0	214,027	511,900
JUL, 03	100,900	214,027	411,000
AUG, 03	428,000	214,027	58,800
SEP, 03	25,000	214,027	33,800
OCT, 03	12,000	214,027	1,448,800
NOV, 03	214,027	214,027	1,234,773
DEC, 03	214,027	214,027	1,020,746
JAN, 04	214,027	214,027	806,719

Figure 3: Demand and Supply of Metformin 850mg tab

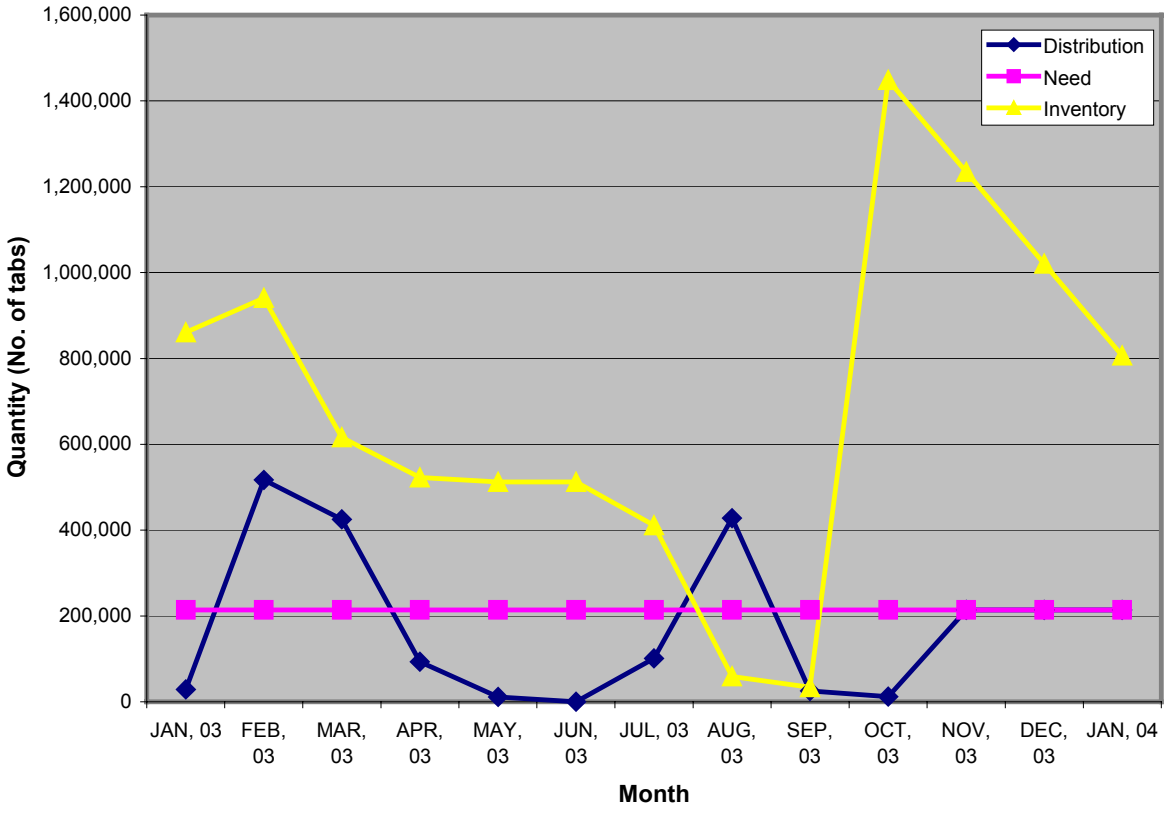


Table 4. Demand and Supply of Insulin lente vial

Month	Distribution	Need	Inventory
JAN, 03			
FEB, 03			
MAR, 03			
APR, 03			
MAY, 03			
JUN, 03			
JUL, 03			
AUG, 03	12,176	68,762	85,560
SEP, 03	3,092	68,762	82,468
OCT, 03	5,186	68,762	77,282
NOV, 03	68,762	68,762	8,520
DEC, 03	8,520	68,762	0
JAN, 04	68,762	68,762	206,288

Figure 4. Demand and Supply of Insulin lente vial

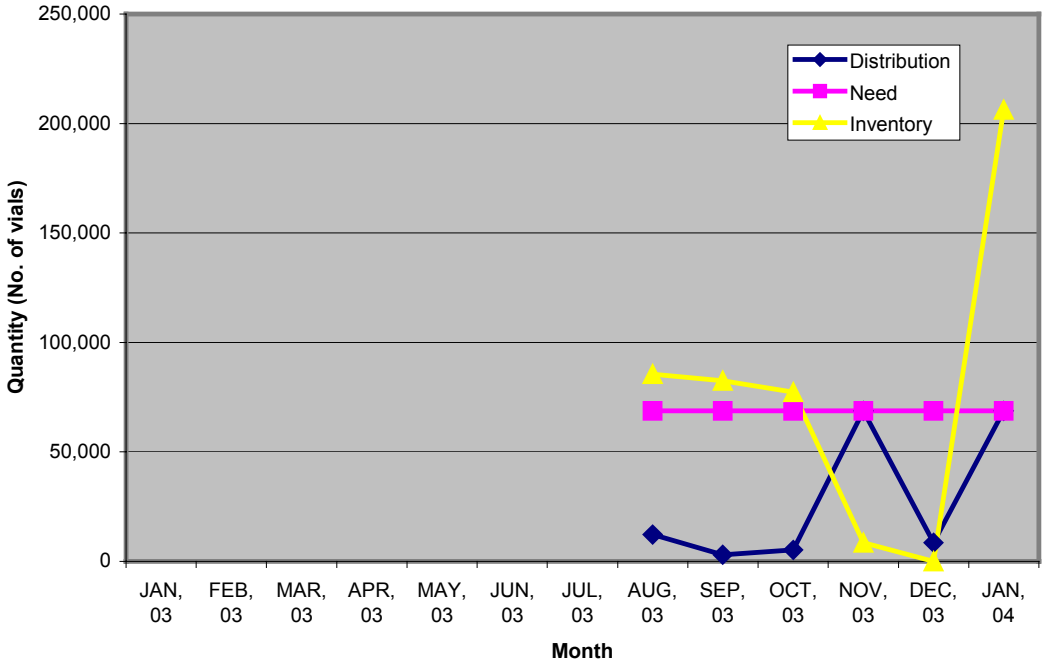


Table 5. Demand and Supply of Throxine 50 mcg tab

Month	Distribution	Need	Inventory
JAN, 03	753,650	187,262	2,371,050
FEB, 03	84,350	187,262	2,286,700
MAR, 03	410,100	187,262	2,072,400
APR, 03	378,300	187,262	1,613,250
MAY, 03	900	187,262	1,612,350
JUN, 03	2,600	187,262	1,609,750
JUL, 03	1,198,200	187,262	411,550
AUG, 03	170,400	187,262	242,800
SEP, 03	110,500	187,262	132,300
OCT, 03	13,500	187,262	118,800
NOV, 03	118,800	187,262	0
DEC, 03	0	187,262	0
JAN, 04	187,262	187,262	561,787

Figure 5. Demand and Supply of thyroxine 50mcg tab

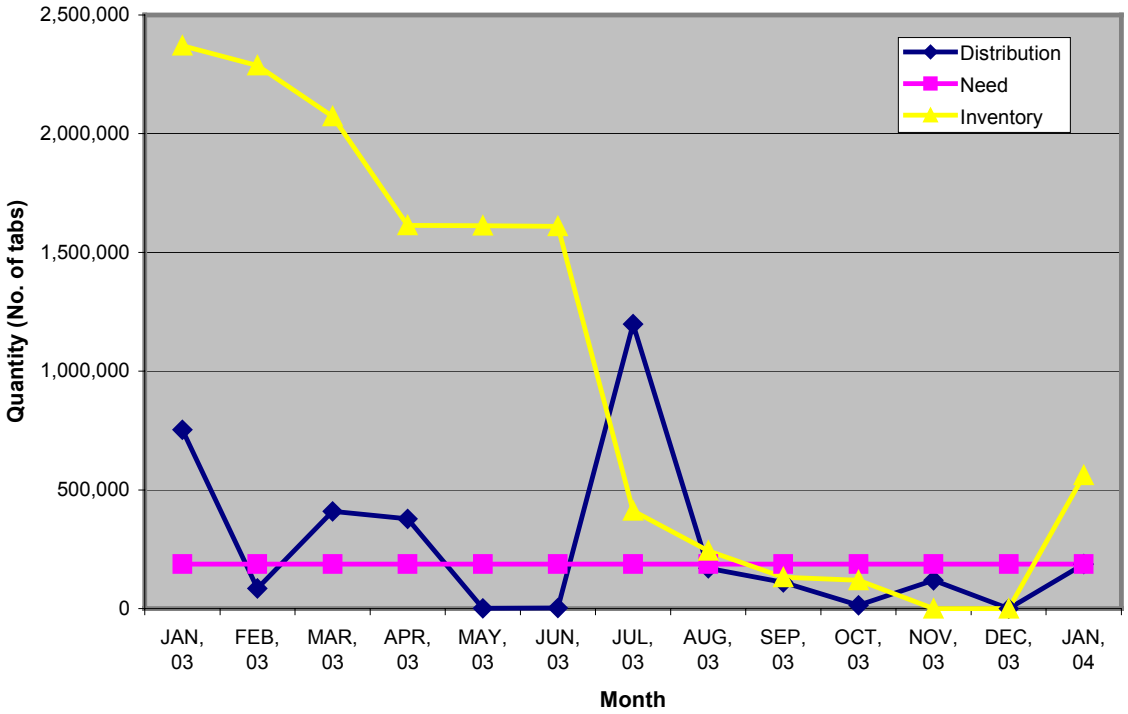


Table 6. Demand and Supply of Thyroxine 100 mcg tabThyroxine 100 mcg tab

Month	Distribution	Need	Inventory
JAN, 03	619,600	806,346	1,922,100
FEB, 03	20,000	806,346	1,902,100
MAR, 03	834,600	806,346	1,067,500
APR, 03	405,600	806,346	661,900
MAY, 03	22,500	806,346	639,400
JUN, 03	17,400	806,346	622,000
JUL, 03	352,400	806,346	269,600
AUG, 03	194,200	806,346	79,100
SEP, 03	0	806,346	79,100
OCT, 03	27,100	806,346	52,000
NOV, 03	52,000	806,346	0
DEC, 03	0	806,346	0
JAN, 04	806,346	806,346	2,419,038

Figure 6. Demand and Supply of Thyroxine 100mcg tab

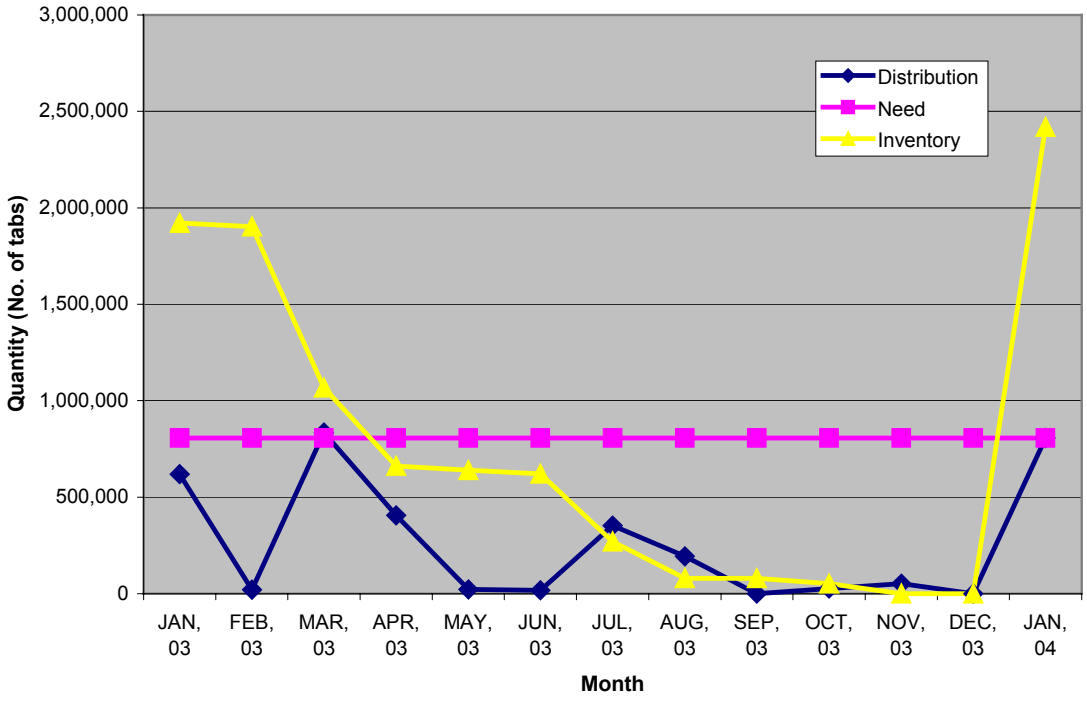


Table 7. Demand and Supply of Depakine 200 mg tab

Month	Distribution	Need	Inventory
JAN, 03	1,511,560	986,148	7,399,660
FEB, 03	101,640	986,148	7,298,020
MAR, 03	1,424,880	986,148	6,673,140
APR, 03	281,680	986,148	6,391,460
MAY, 03	11,760	986,148	6,379,700
JUN, 03	18,720	986,148	6,354,980
JUL, 03	340,600	986,148	6,014,380
AUG, 03	34,440	986,148	6,012,700
SEP, 03	22,880	986,148	9,290,140
OCT, 03	3,602,960	986,148	7,623,380
NOV, 03	986,148	986,148	6,637,232
DEC, 03	986,148	986,148	5,651,084
JAN, 04	986,148	986,148	4,664,936

Figure 7. Demand and Supply of Depakin 200mg tab

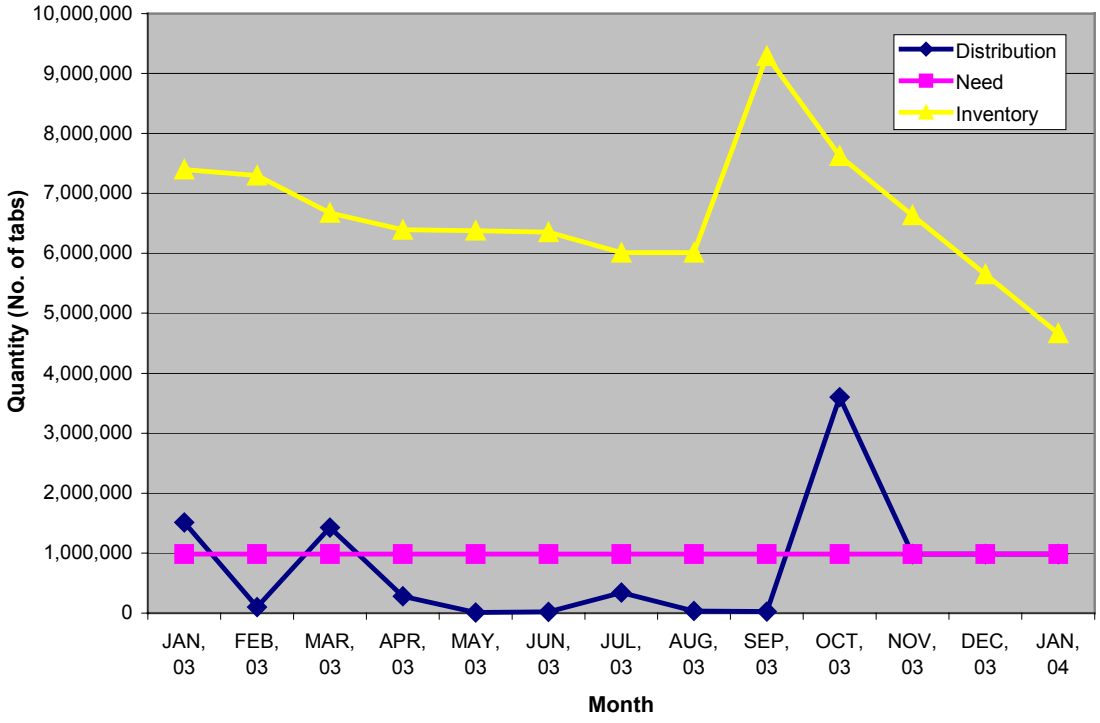


Table 8. Demand and Supply of Depakin drops

Month	Distribution	Need	Inventory
JAN, 03	33,340	20,231	23,420
FEB, 03	2,228	20,231	53,442
MAR, 03	44,870	20,231	8,572
APR, 03	51	20,231	8,521
MAY, 03	800	20,231	7,721
JUN, 03	3,242	20,231	4,479
JUL, 03	2,146	20,231	2,333
AUG, 03	726	20,231	1,859
SEP, 03	1,385	20,231	36,224
OCT, 03	39,317	20,231	19,670
NOV, 03	19,670	20,231	0
DEC, 03	0	20,231	0
JAN, 04	20,231	20,231	185,378

Figure 8. Demand and Supply of Depakin drops

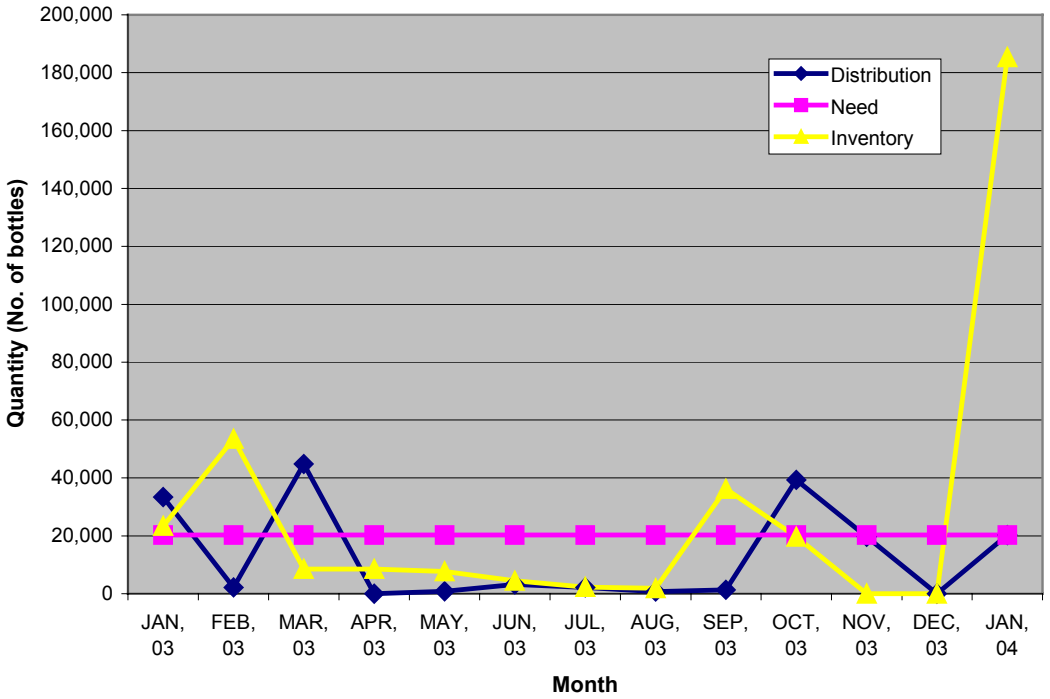


Table 9. Demand and Supply of Clonazepam 0.5 mg tab

Month	Distribution	Need	Inventory
JAN, 03	3,000	212,074	60,000
FEB, 03	5,000	212,074	55,000
MAR, 03	0	212,074	55,000
APR, 03	0	212,074	55,000
MAY, 03	1,000	212,074	54,000
JUN, 03	4,000	212,074	50,000
JUL, 03	0	212,074	50,000
AUG, 03	15,000	212,074	35,000
SEP, 03	7,000	212,074	28,000
OCT, 03	15,000	212,074	13,000
NOV, 03	13,000	212,074	0
DEC, 03	0	212,074	0
JAN, 04	212,074	212,074	636,223

Figure 9. Demand and Supply of Clonazepam 0.5mg tab

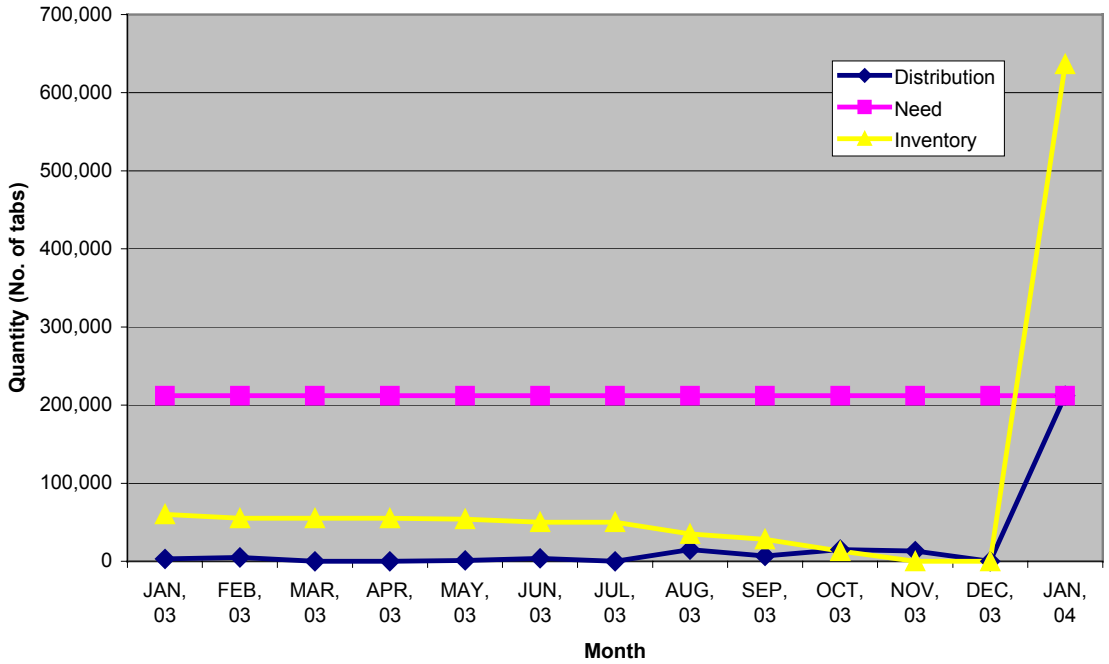


Table 10. Demand and Supply of Propranolol 40 mg tab

Month	Distribution	Need	Inventory
JAN, 03	2,189,600	1,859,092	13,017,300
FEB, 03	134,600	1,859,092	12,882,700
MAR, 03	37,000	1,859,092	12,845,700
APR, 03	18,060	1,859,092	12,827,640
MAY, 03	135,420	1,859,092	12,692,220
JUN, 03	117,470	1,859,092	15,409,750
JUL, 03	139,350	1,859,092	15,270,400
AUG, 03	1,979,640	1,859,092	13,277,460
SEP, 03	1,782,260	1,859,092	11,495,200
OCT, 03	128,800	1,859,092	11,366,400
NOV, 03	1,859,092	1,859,092	9,507,308
DEC, 03	1,859,092	1,859,092	7,648,216
JAN, 04	1,859,092	1,859,092	5,789,124

Figure 10. Demand and Supply of Propranolol 40mg tab

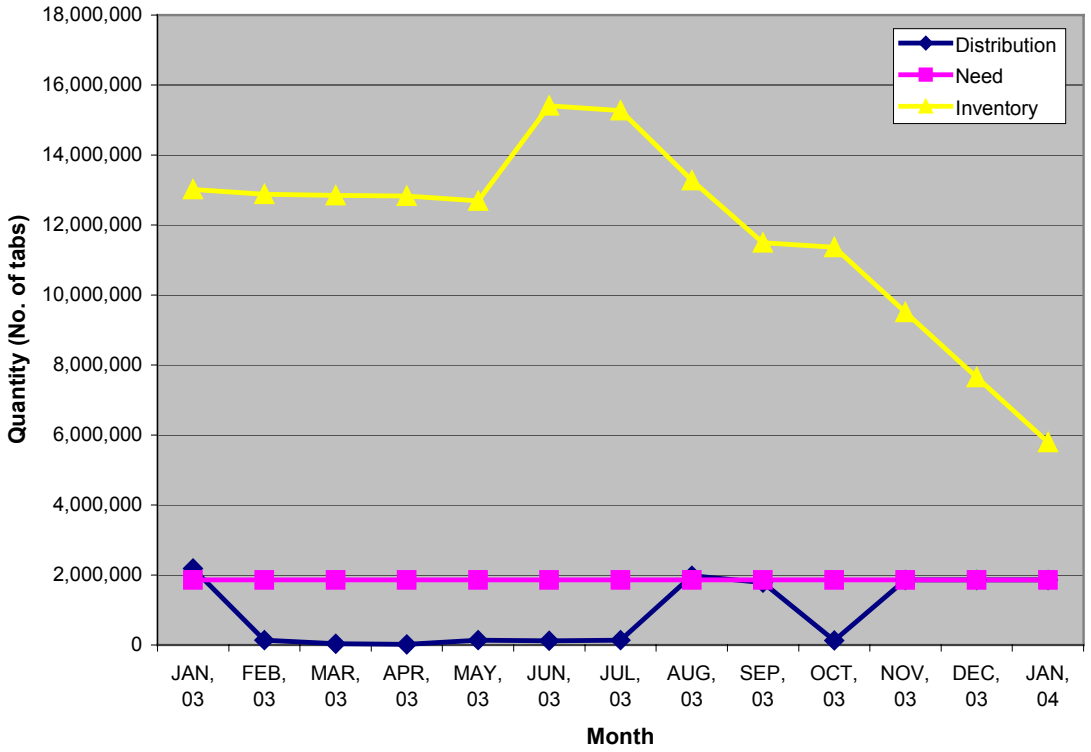


Table 11. Demand and Supply of Salbutamol Inhaler

Month	Distribution	Need	Inventory
JAN, 03	433,331	200,926	738,874
FEB, 03	95,790	200,926	643,084
MAR, 03	349,140	200,926	293,944
APR, 03	1,196	200,926	292,748
MAY, 03	5,061	200,926	287,687
JUN, 03	55,802	200,926	231,884
JUL, 03	41,173	200,926	1,390,711
AUG, 03	38,818	200,926	1,358,513
SEP, 03	108,596	200,926	1,258,565
OCT, 03	1,739	200,926	1,256,826
NOV, 03	200,926	200,926	1,055,900
DEC, 03	200,926	200,926	854,974
JAN, 04	200,926	200,926	654,048

Figure 11. Demand and Supply of Salbutamol inhalor

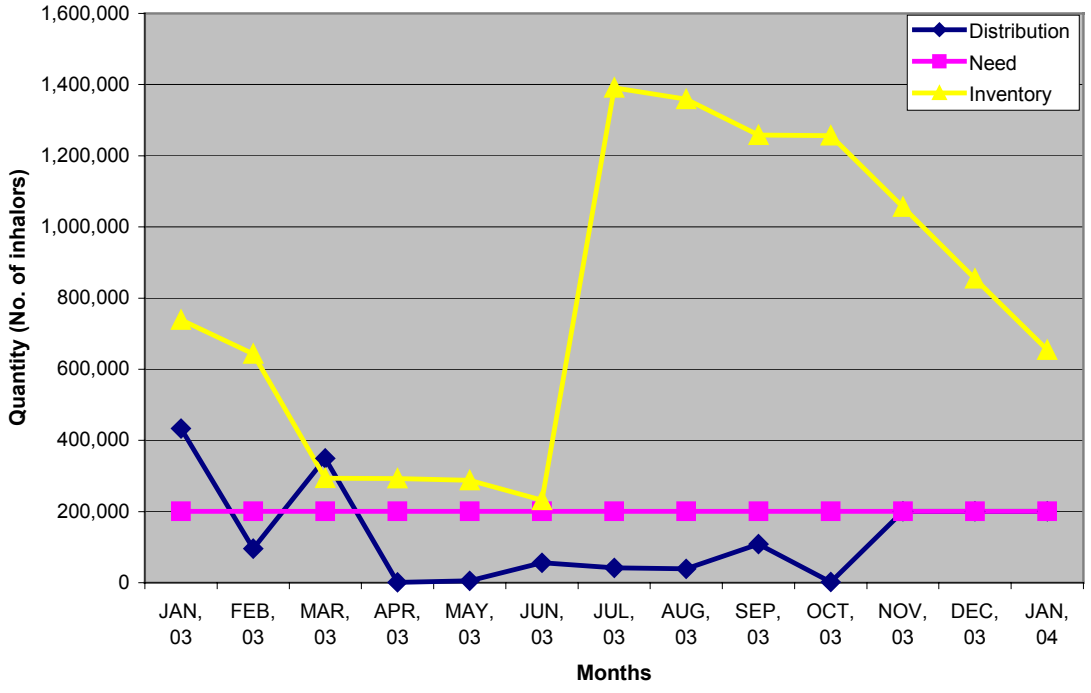


Table 12. Demand and Supply of Cyclosporin cap 100 mg

Month	Distribution	Need	Inventory
JAN, 03	15,900	8,232	15,200
FEB, 03	2,000	8,232	13,200
MAR, 03	2,700	8,232	10,500
APR, 03	100	8,232	10,400
MAY, 03	400	8,232	10,000
JUN, 03	1,050	8,232	8,900
JUL, 03	350	8,232	8,550
AUG, 03	2,100	8,232	7,850
SEP, 03	1,100	8,232	6,750
OCT, 03	2,750	8,232	4,000
NOV, 03	4,000	8,232	0
DEC, 03	0	8,232	0
JAN, 04	0	8,232	0

Figure 12. Demand and Supply of Cyclosporin 100mg Cap

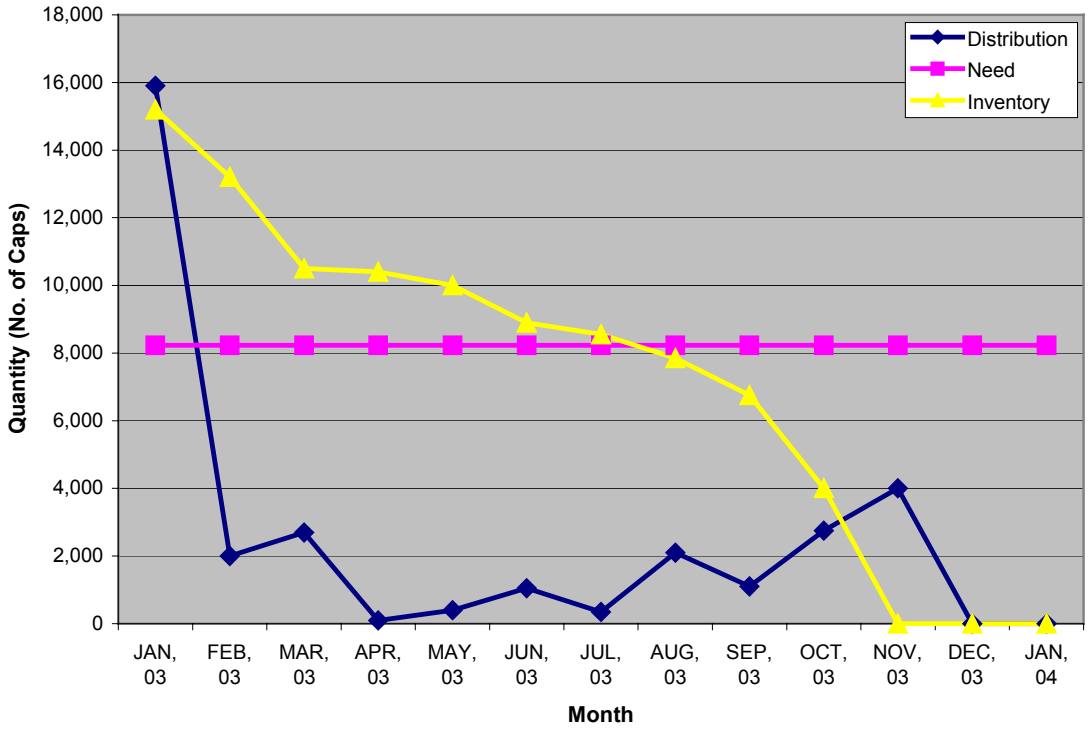


Table 13. Demand and Supply of Methotrexate tab 2.5 mg

Month	Distribution	Need	Inventory
JAN, 03	15,850	8,232	94,750
FEB, 03	53,050	8,232	41,700
MAR, 03	8,100	8,232	33,600
APR, 03	1,250	8,232	32,350
MAY, 03	6,000	8,232	26,350
JUN, 03	5,200	8,232	18,750
JUL, 03	6,100	8,232	12,650
AUG, 03	6,700	8,232	10,750
SEP, 03	5,300	8,232	5,450
OCT, 03	2,000	8,232	3,450
NOV, 03	3,450	8,232	0
DEC, 03	0	8,232	0
JAN, 04	0	8,232	0

Figure 13. Demand and Supply of Methotrexate 2.5mg tab

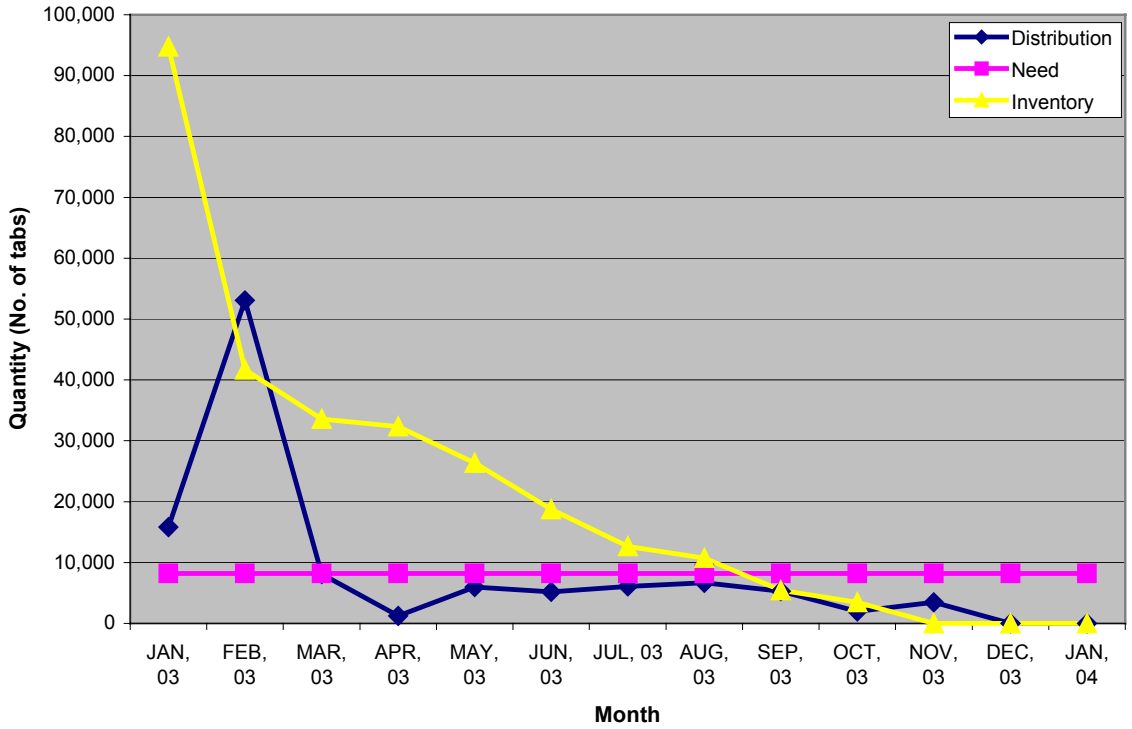


Table 14. Demand and Supply of Folinic acid tab 15 mg

Month	Distribution	Need	Inventory
JAN, 03	0	3,373	9,000
FEB, 03	0	3,373	9,000
MAR, 03	0	3,373	9,000
APR, 03	0	3,373	9,000
MAY, 03	0	3,373	9,000
JUN, 03	0	3,373	9,000
JUL, 03	0	3,373	9,000
AUG, 03	0	3,373	9,000
SEP, 03	0	3,373	9,000
OCT, 03	0	3,373	9,000
NOV, 03	3,373	3,373	5,627
DEC, 03	3,373	3,373	2,254
JAN, 04	3,373	3,373	0

Figure 14. Demand and Supply of folinic acid 15mg tab

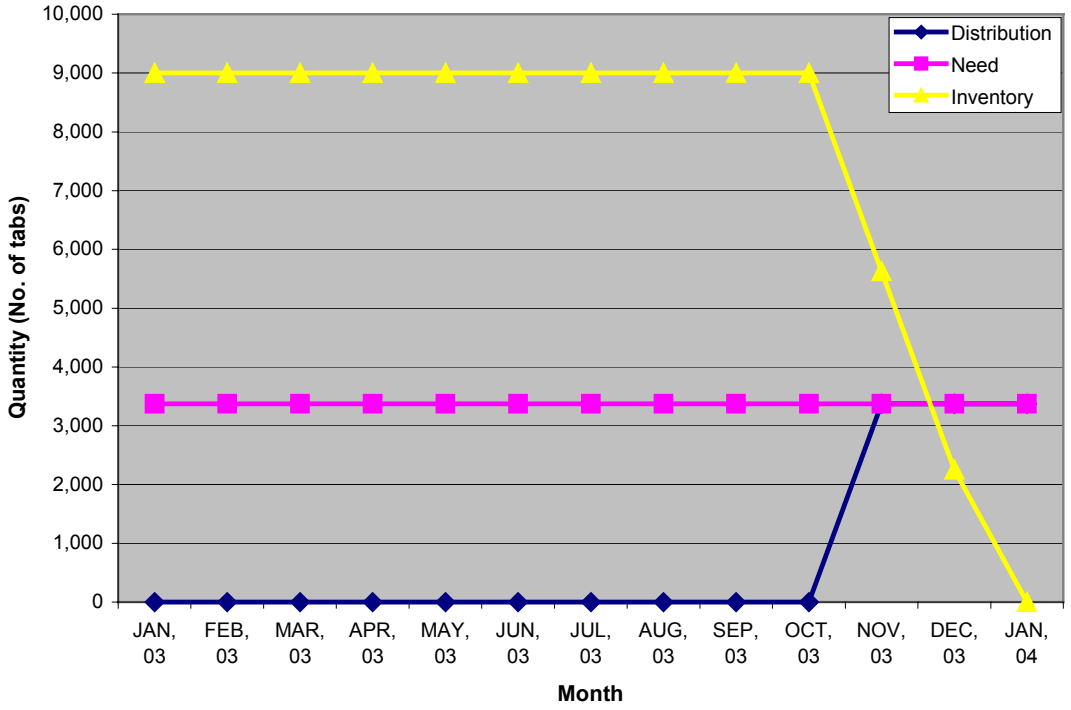


Table 15. Demand and Supply of Benzathine penicillin 600 000 u

Month	Distribution	Need	Inventory
JAN, 03	5,100	64,638	13,900
FEB, 03	7,090	64,638	6,810
MAR, 03	6,810	64,638	0
APR, 03	0	64,638	0
MAY, 03	0	64,638	0
JUN, 03	0	64,638	0
JUL, 03	0	64,638	0
AUG, 03	0	64,638	0
SEP, 03	0	64,638	0
OCT, 03	0	64,638	0
NOV, 03	0	64,638	0
DEC, 03	0	64,638	0
JAN, 04	0	64,638	0

Figure 15. Demand and Supply of Benzathin Penicillin 600000 U Vial

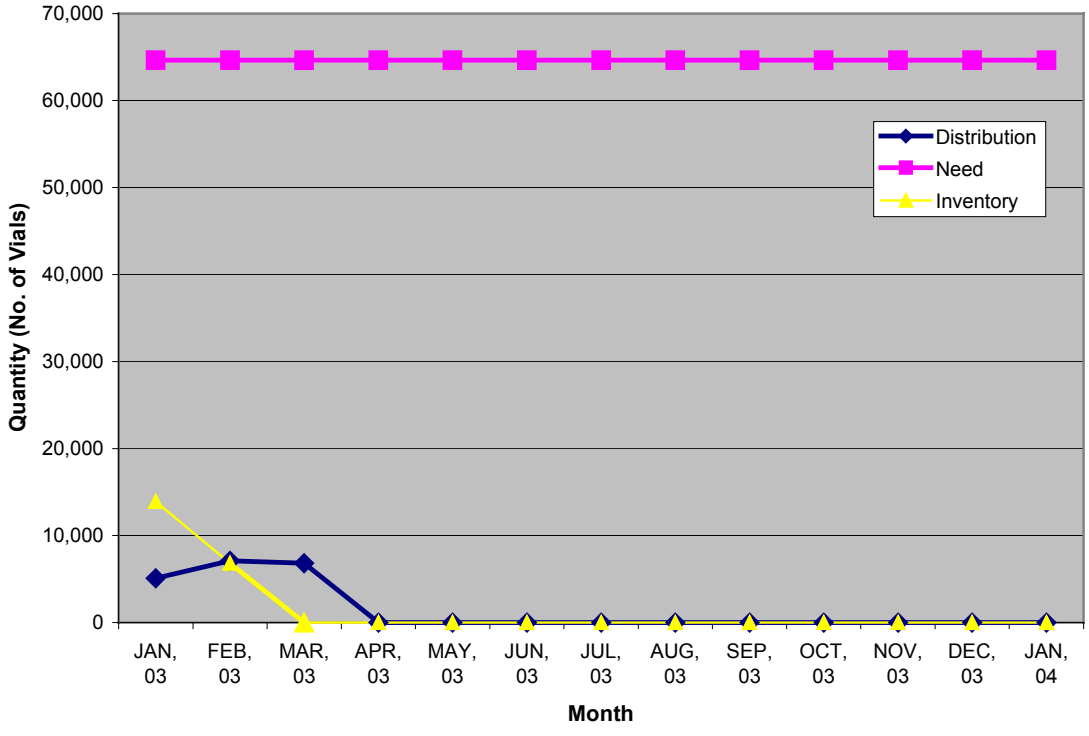


Table 16. Demand and Supply of Benzathin penicillin 1200000 U

Month	Distribution	Need	Inventory
JAN, 03	350	67,165	700
FEB, 03	10,700	67,165	403,500
MAR, 03	11,750	67,165	391,750
APR, 03	2,750	67,165	389,000
MAY, 03	11,209	67,165	377,791
JUN, 03	16,907	67,165	360,882
JUL, 03	76,233	67,165	284,649
AUG, 03	45,000	67,165	285,966
SEP, 03	55,322	67,165	230,644
OCT, 03	30,934	67,165	656,147
NOV, 03	67,165	67,165	588,982
DEC, 03	67,165	67,165	521,817
JAN, 04	67,165	67,165	454,652

Figure 16. Demand and Supply of Benzathin Penicillin 1200000 U Vials

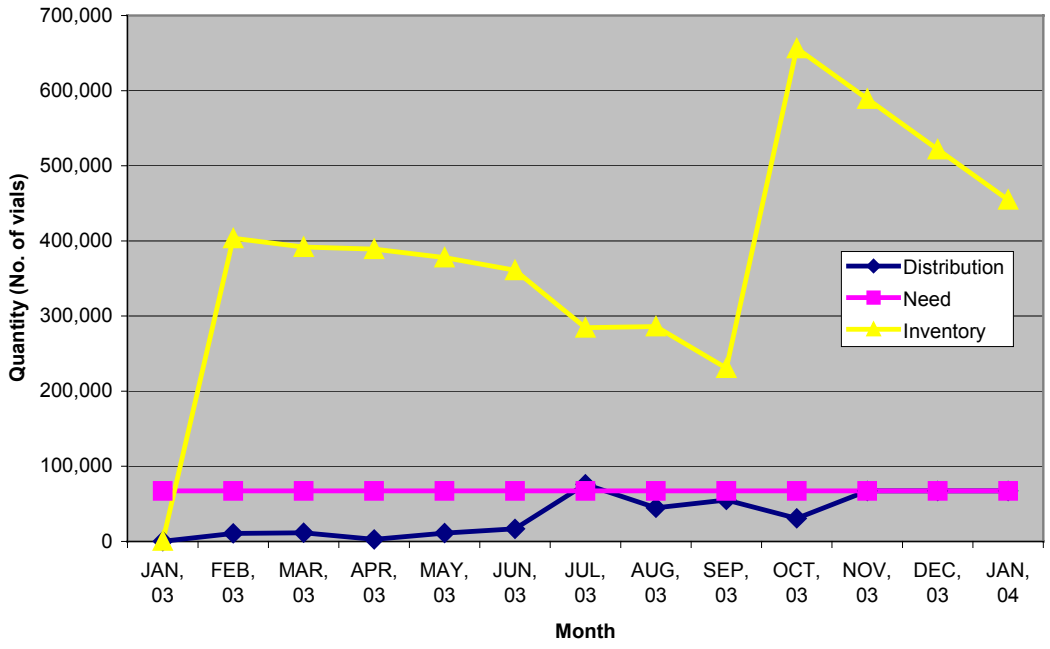


Table 17. Demand and Supply of Acyclovir 200 mg, Cap.

Month	Distribution	Need	Inventory
JAN, 03	804	180,147	36
FEB, 03	0	180,147	36
MAR, 03	0	180,147	36
APR, 03	0	180,147	36
MAY, 03	0	180,147	36
JUN, 03	24	180,147	12
JUL, 03	0	180,147	12
AUG, 03	0	180,147	82,512
SEP, 03	7,500	180,147	75,012
OCT, 03	48,504	180,147	26,508
NOV, 03	26,508	180,147	0
DEC, 03	0	180,147	0
JAN, 04	0	180,147	0

Figure 17. Demand and Supply of Acyclovir 200mg Cap

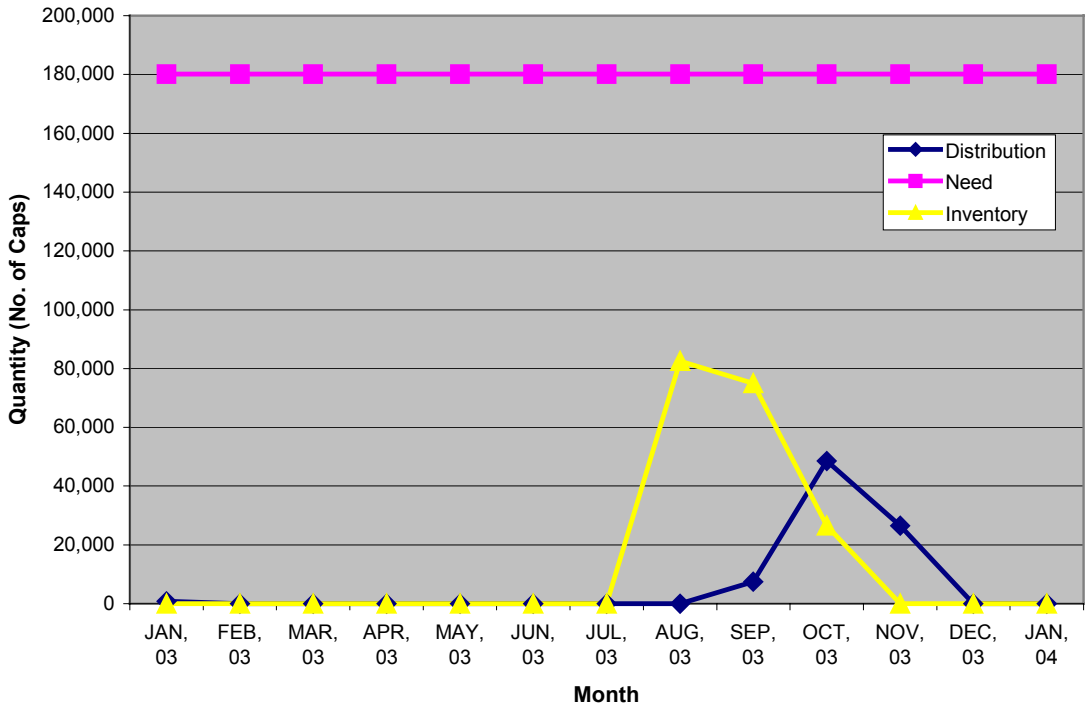


Table 18. Demand and Supply of Erythromycin 250 mg, Susp.

Month	Distribution	Need	Inventory
JAN, 03	54,100	146,654	51,069
FEB, 03	33,475	146,654	17,594
MAR, 03	2,500	146,654	15,094
APR, 03	0	146,654	15,094
MAY, 03	0	146,654	15,094
JUN, 03	0	146,654	15,094
JUL, 03	2,354	146,654	12,740
AUG, 03	6	146,654	17,212
SEP, 03	4,357	146,654	12,855
OCT, 03	10,158	146,654	2,697
NOV, 03	2,697	146,654	0
DEC, 03	0	146,654	0
JAN, 04	0	146,654	0

Figure 18. Demand and Supply of Erythromycin 250mg/5ml Susp.

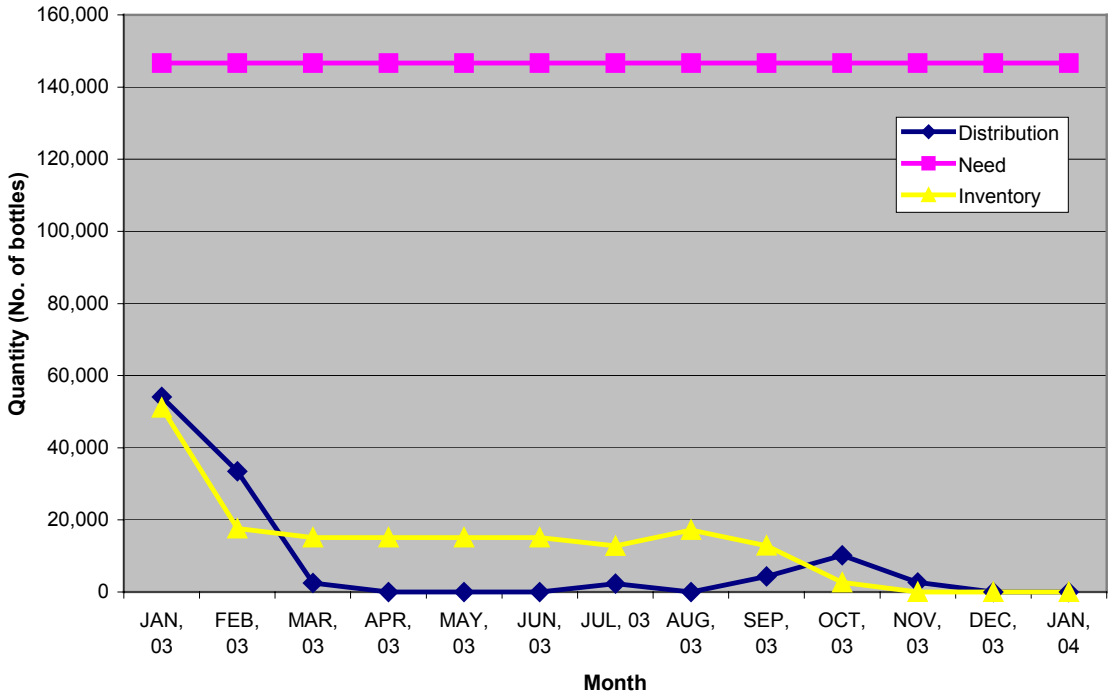


Table 19. Demand and Supply of Ciprofloxacin 500 mg. tab.

Month	Distribution	Need	Inventory
JAN, 03	1,996,380	1,557,833	3,829,070
FEB, 03	1,805,800	1,557,833	6,726,680
MAR, 03	397,020	1,557,833	5,985,788
APR, 03	13,200	1,557,833	6,316,460
MAY, 03	142,800	1,557,833	6,173,660
JUN, 03	215,500	1,557,833	5,958,160
JUL, 03	345,330	1,557,833	5,612,830
AUG, 03	416,500	1,557,833	5,810,180
SEP, 03	579,800	1,557,833	965,440
OCT, 03	1,601,400	1,557,833	3,633,300
NOV, 03	1,557,833	1,557,833	2,075,467
DEC, 03	1,557,833	1,557,833	517,634
JAN, 04	1,557,833	1,557,833	0

Figure 19. Demand and Supply of Ciprofloxacin 500mg tab

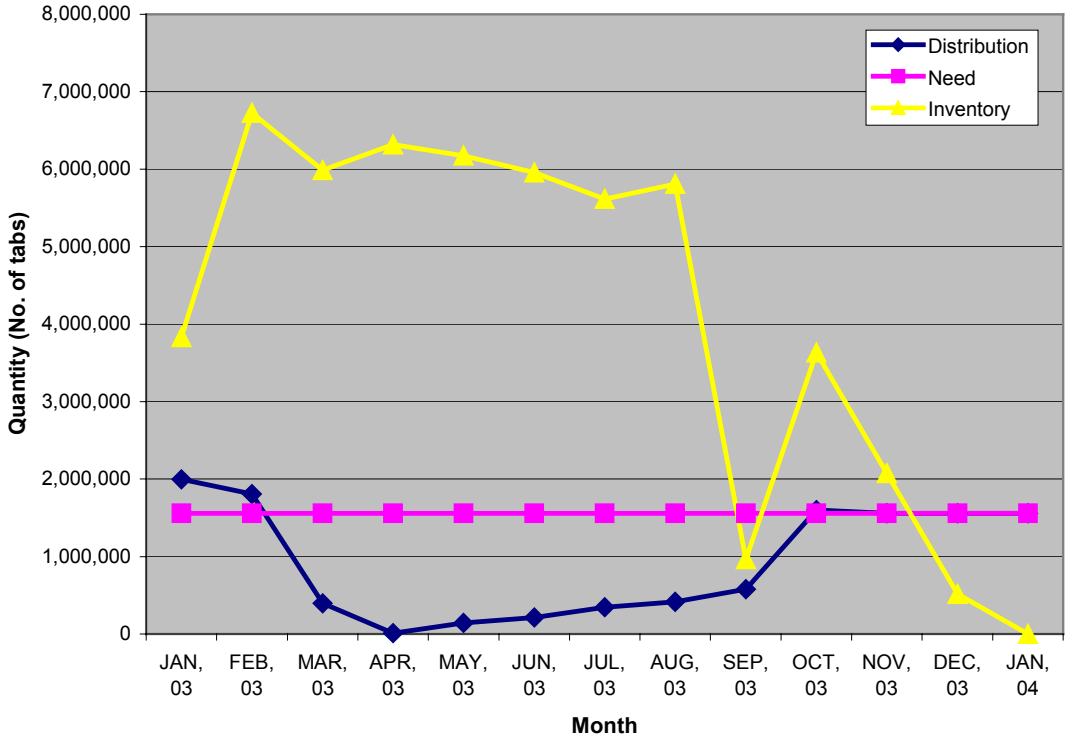


Table 20. Demand and Supply of Methylprednisolone 40 mg. Vial

Month	Distribution	Need	Inventory
JAN, 03	181	47,024	51,093
FEB, 03	249	47,024	227,627
MAR, 03	353	47,024	227,274
APR, 03	0	47,024	227,274
MAY, 03	0	47,024	227,274
JUN, 03	0	47,024	227,274
JUL, 03	99	47,024	227,175
AUG, 03	0	47,024	227,175
SEP, 03	636	47,024	226,539
OCT, 03	480	47,024	226,059
NOV, 03	47,024	47,024	179,035
DEC, 03	47,024	47,024	132,011
JAN, 04	47,024	47,024	84,987

Figure 20. Demand and Supply of Methylprednisolone acetate 40mg Vial

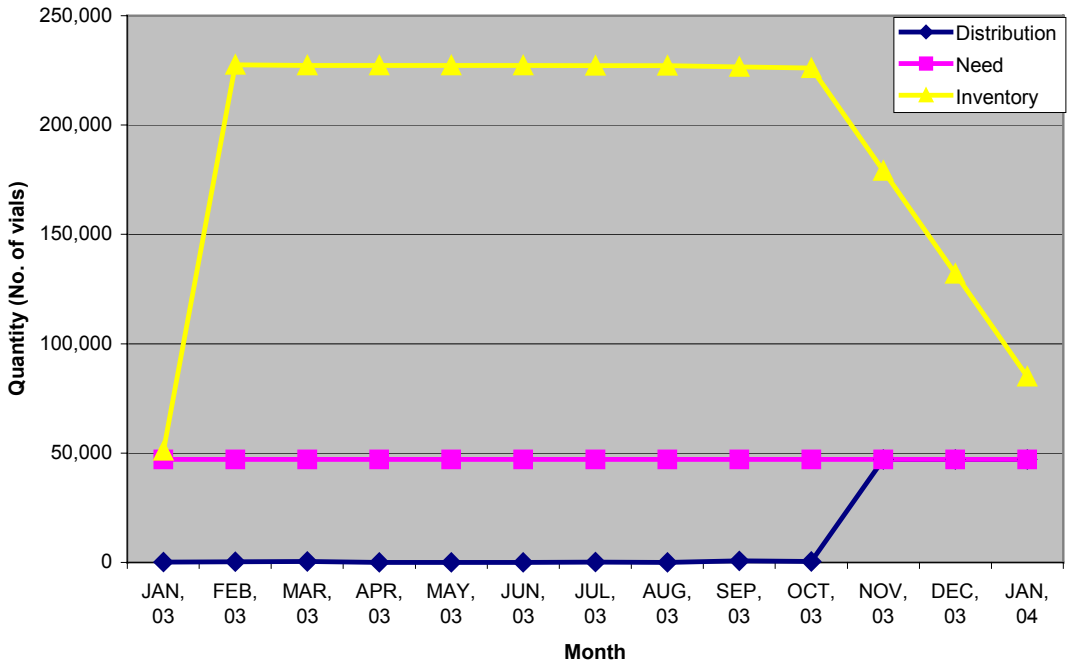


Table 21. Demand and Supply of Albandazole 100 mg. Susp.

Month	Distribution	Need	Inventory
JAN, 03	8,762	94,101	49,642
FEB, 03	11,968	94,101	37,674
MAR, 03	15,026	94,101	22,648
APR, 03	3,500	94,101	19,148
MAY, 03	6,002	94,101	13,146
JUN, 03	6,942	94,101	6,204
JUL, 03	1,162	94,101	5,042
AUG, 03	0	94,101	5,042
SEP, 03	1,121	94,101	3,921
OCT, 03	2,449	94,101	1,472
NOV, 03	1,472	94,101	0
DEC, 03	0	94,101	0
JAN, 04	0	94,101	0

Figure 21. Demand and Supply of Albandazole 100mg/ml Susp.

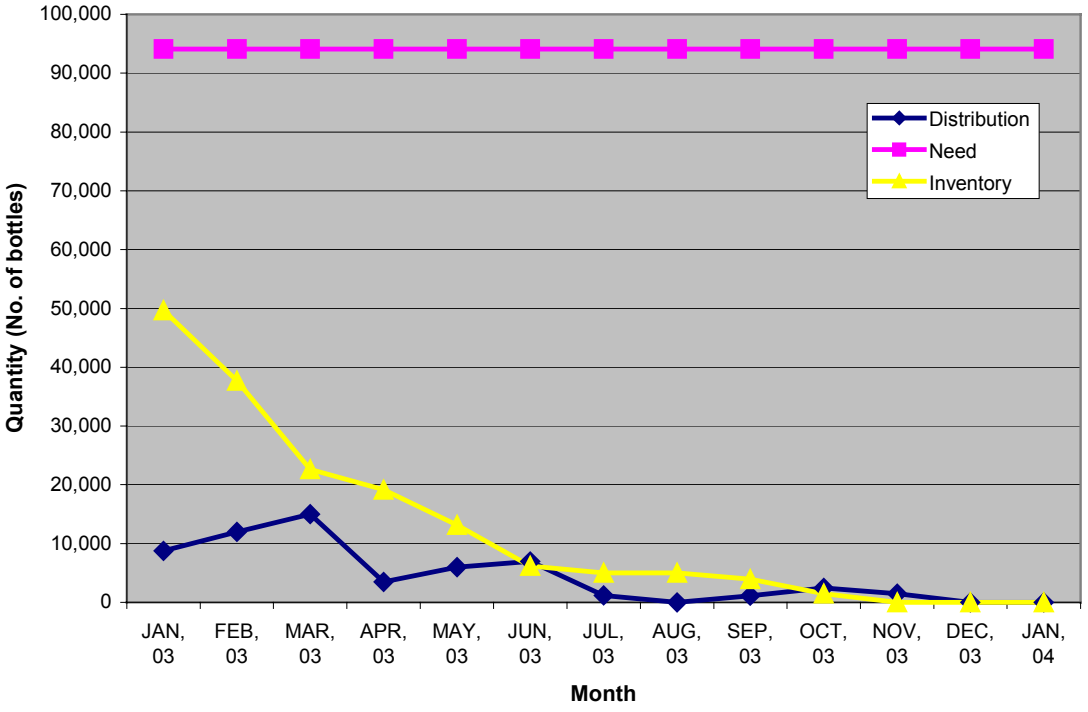


Table 22. Demand and Supply of Albandazole 200 mg tab.			
Month	**Distribution**	**Need**	**Inventory**
JAN, 03	246,180	543,821	2,962,500
FEB, 03	622,642	543,821	2,339,858
MAR, 03	121,200	543,821	2,218,658
APR, 03	0	543,821	2,218,658
MAY, 03	5,400	543,821	2,213,258
JUN, 03	25,208	543,821	2,188,050
JUL, 03	222,020	543,821	1,966,030
AUG, 03	74,544	543,821	1,929,486
SEP, 03	176,324	543,821	1,753,162
OCT, 03	296,616	543,821	1,456,546
NOV, 03	543,821	543,821	912,725
DEC, 03	543,821	543,821	368,904
JAN, 04	543,821	543,821	0

Figure 22. Demand and Supply of Albandazole 200mg tab.

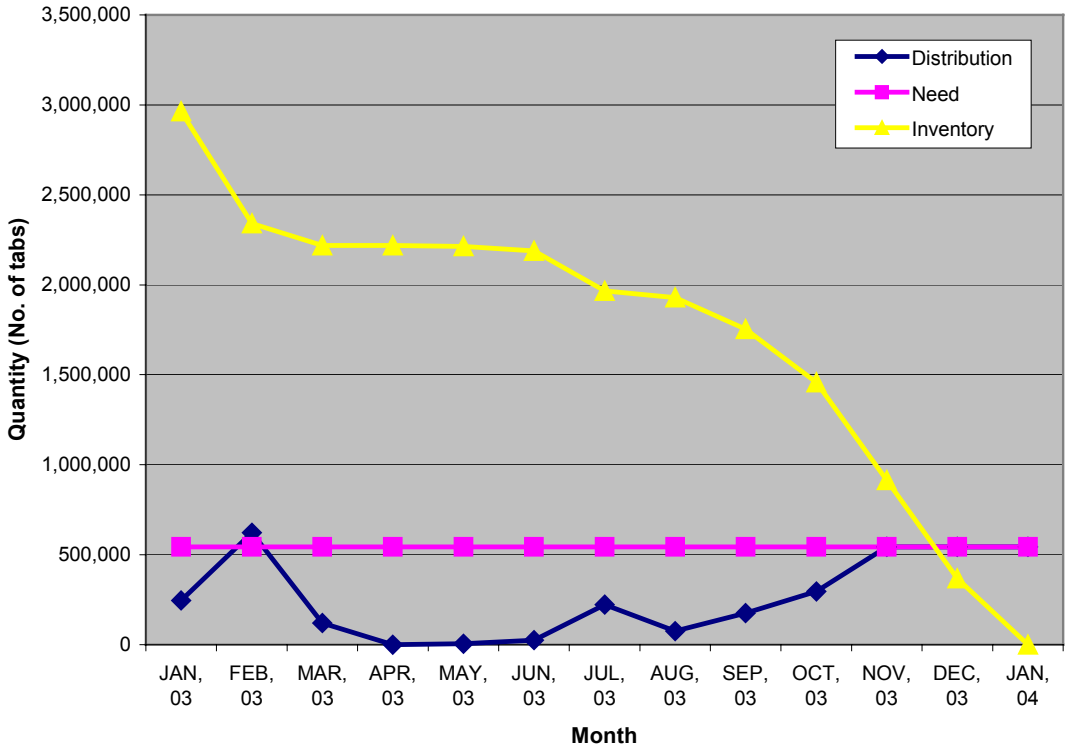


Table 23. Demand and Supply of Haloperidol 1.5 mg tab.

Month	Distribution	Need	Inventory
JAN, 03	97,100	476,755	1,326,300
FEB, 03	140,500	476,755	1,185,800
MAR, 03	39,560	476,755	1,146,240
APR, 03	0	476,755	1,146,240
MAY, 03	11,440	476,755	1,134,800
JUN, 03	37,740	476,755	1,087,060
JUL, 03	147,900	476,755	939,160
AUG, 03	77,260	476,755	7,796,200
SEP, 03	162,050	476,755	7,701,150
OCT, 03	267,400	476,755	7,433,750
NOV, 03	476,755	476,755	6,956,995
DEC, 03	476,755	476,755	6,480,240
JAN, 04	476,755	476,755	6,003,485

Figure 23. Demand and Supply of Haloperidole 1.5mg tab.

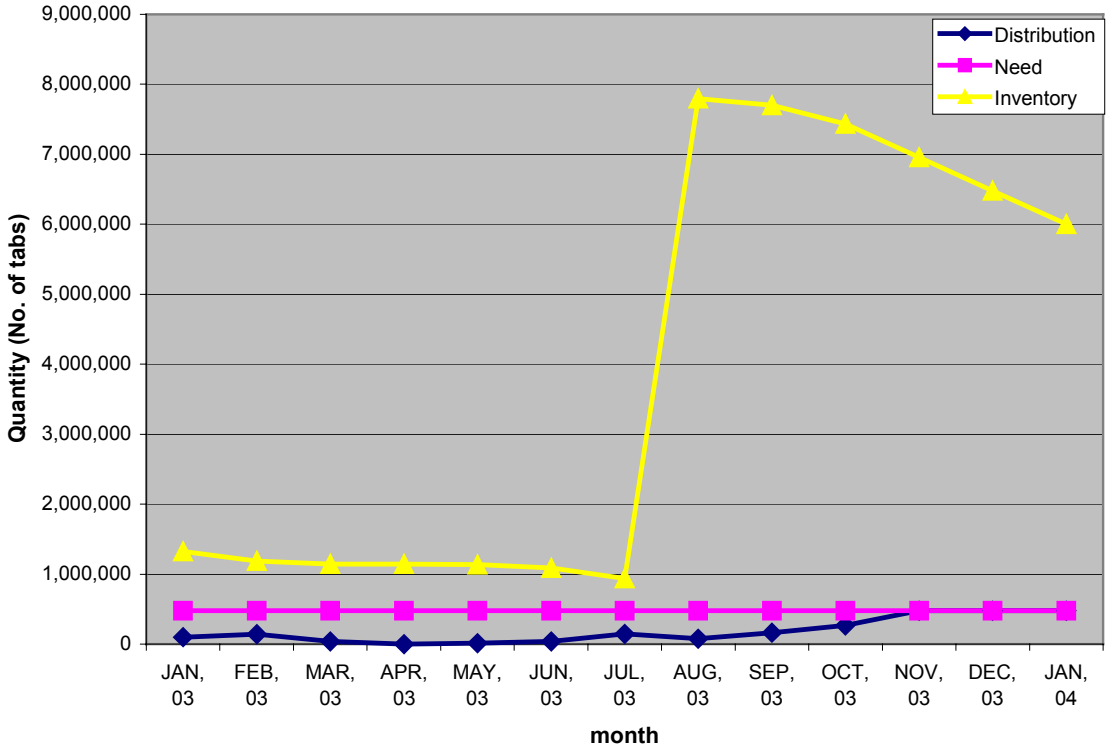


Table 24. Demand and Supply of Anti D vial

Month	Distribution	Need	Inventory
JAN, 03	2,623	49,702	1,721
FEB, 03	290	49,702	2,602
MAR, 03	2,717	49,702	4,885
APR, 03	0	49,702	4,885
MAY, 03	370	49,702	4,515
JUN, 03	2,010	49,702	2,905
JUL, 03	868	49,702	1,920
AUG, 03	2,806	49,702	5,555
SEP, 03	1,992	49,702	8,664
OCT, 03	1,974	49,702	6,690
NOV, 03	6,690	49,702	0
DEC, 03	0	49,702	0
JAN, 04	0	49,702	0

Figure 24. Demand and Supply of Anti D Vials

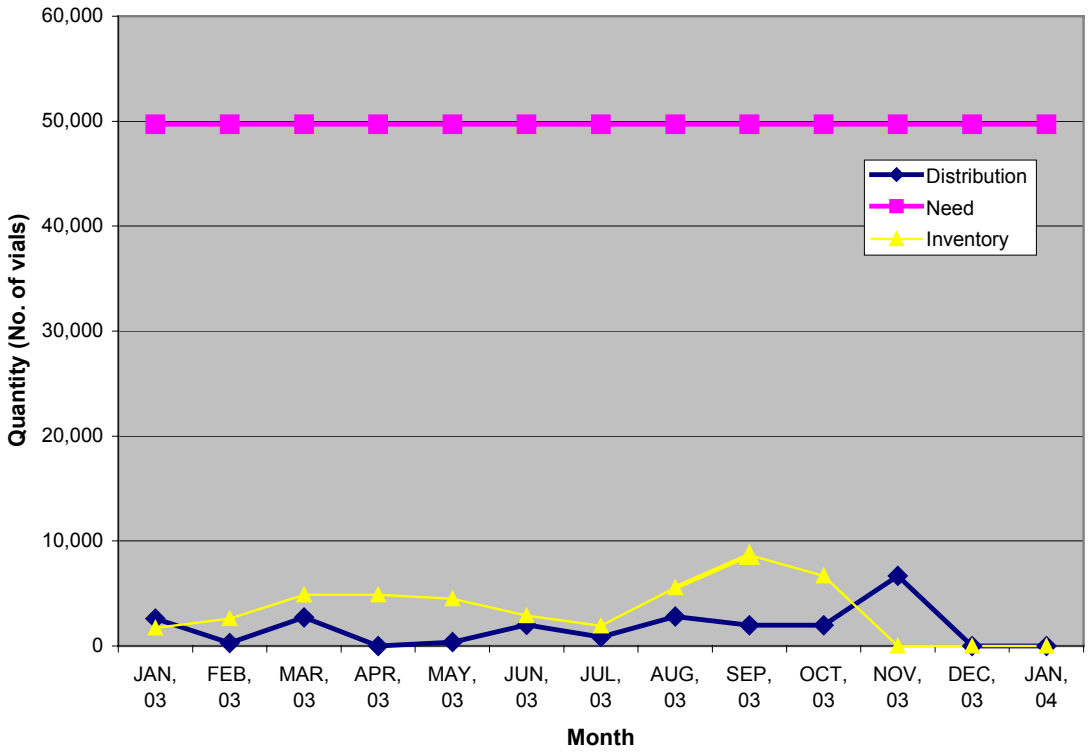


Table 25. Demand and Supply of Glibenclamide 5 mg, tab.

Month	Distribution	Need	Inventory
JAN, 03	13,000	3,617,274	78,884,200
FEB, 03	40,000	3,617,274	78,844,200
MAR, 03	0	3,617,274	78,844,200
APR, 03	1,000	3,617,274	78,843,200
MAY, 03	62,000	3,617,274	78,781,200
JUN, 03	18,000	3,617,274	78,763,200
JUL, 03	3,000	3,617,274	78,759,200
AUG, 03	3,400,000	3,617,274	75,360,200
SEP, 03	8,664,000	3,617,274	66,696,200
OCT, 03	19,289,000	3,617,274	47,407,200
NOV, 03	3,617,274	3,617,274	43,789,926
DEC, 03	3,617,274	3,617,274	40,172,652
JAN, 04	3,617,274	3,617,274	36,555,378

Figure 25. Demand and Supply of Glibenclamide 5mg tab.

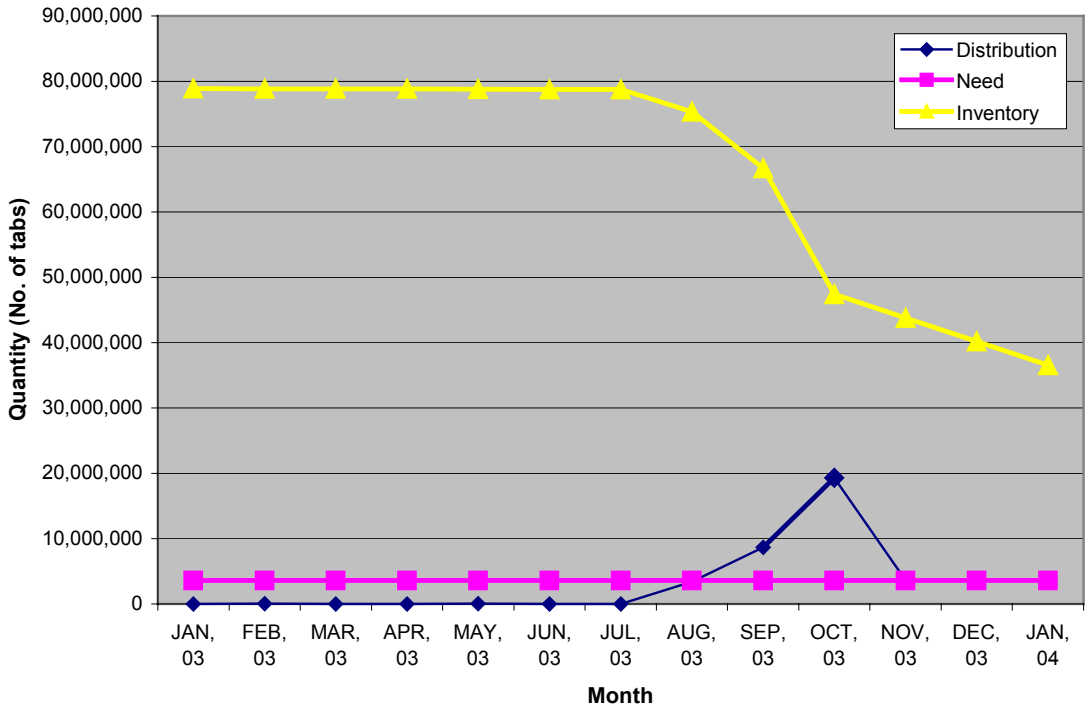


Table 26. Demand and Supply of Nifedipine, 10mg cap

Month	Distribution	Need	Inventory
JAN, 03	2,476,700	363,200	19,915,800
FEB, 03	13,500	363,200	19,902,300
MAR, 03	4,269,500	363,200	15,632,800
APR, 03	394,500	363,200	15,238,300
MAY, 03	64,600	363,200	15,173,700
JUN, 03	45,200	363,200	15,128,500
JUL, 03	3,040,700	363,200	12,087,800
AUG, 03	83,100	363,200	12,020,700
SEP, 03	121,600	363,200	11,904,300
OCT, 03	1,379,300	363,200	10,525,000
NOV, 03	363,200	363,200	10,161,800
DEC, 03	363,200	363,200	9,798,600
JAN, 04	363,200	363,200	9,435,400

Figure 26. Demand and Supply of Nifedipin 10mg tab.

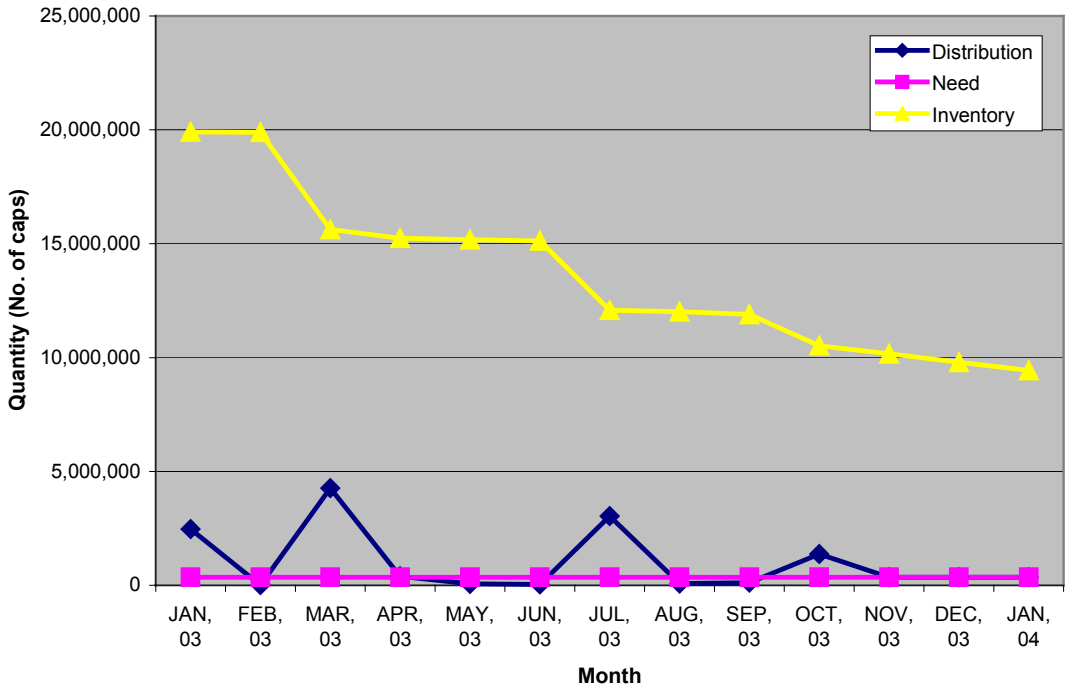


Table 27. Demand and Supply of Measles Vaccine

Month	Distribution	Need	Inventory
JUN, 03	147,800	56,164	
JUL, 03	18,000	56,164	
AUG, 03	236,500	56,164	
SEP, 03	160,864	56,164	
OCT, 03	134,640	56,164	449,315
NOV, 03	56,164	56,164	393,151
DEC, 03	56,164	56,164	336,986
JAN, 04	56,164	56,164	280,822

Figure 27. Demand and Supply of Measles Vaccine

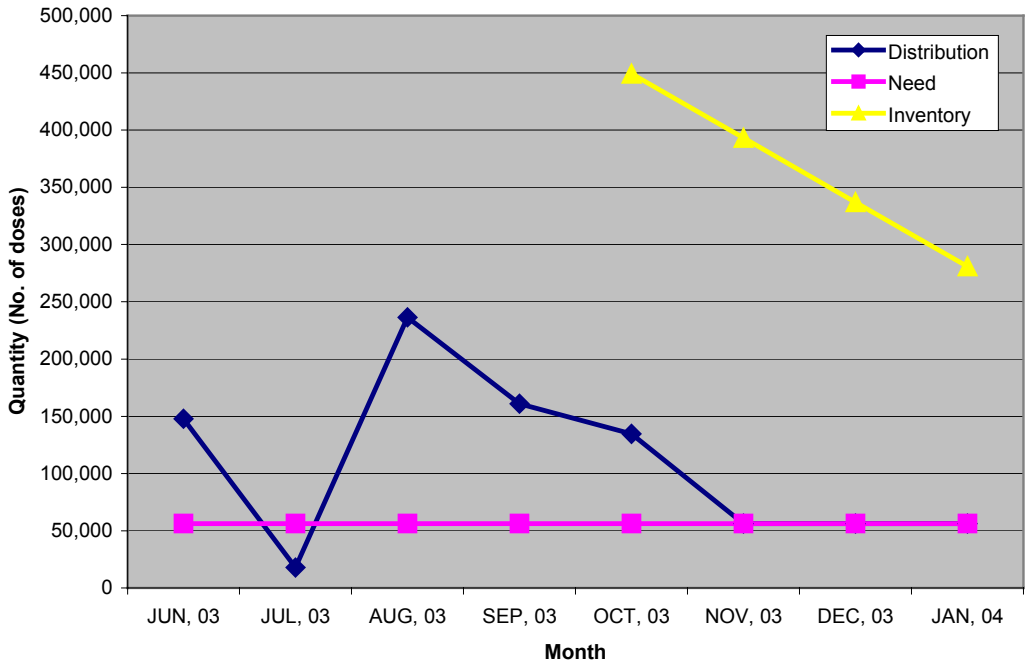


Table 28. Deamnd and Supply of OPV Vaccine

Month	Distribution	Need	Inventory
JUN, 03	263,000	0	
JUL, 03	96,000	336,986	
AUG, 03	291,000	336,986	
SEP, 03	316,800	336,986	
OCT, 03	107,360	336,986	2,358,904
NOV, 03	336,986	336,986	2,021,918
DEC, 03	336,986	336,986	1,684,932
JAN, 04	336,986	336,986	1,347,945

Figure 28. Demand and Supply of OPV

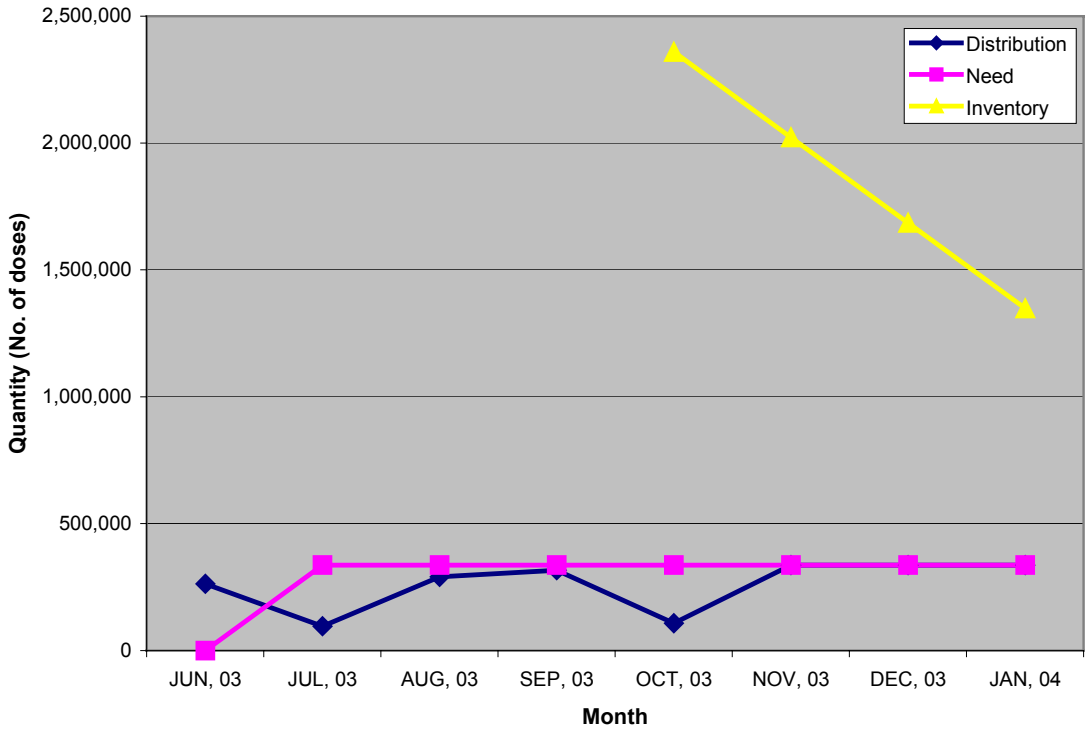


Table 29. Demand and Supply of DTP Vaccine

Month	Distribution	Need	Inventory
JUN, 03	151,000	240,705	
JUL, 03	48,000	240,705	
AUG, 03	295,000	240,705	
SEP, 03	120,560	240,705	
OCT, 03	315,920	240,705	0
NOV, 03	0	240,705	962,818
DEC, 03	240,705	240,705	722,114
JAN, 04	240,705	240,705	481,409

Figure 29. Demand and Supply of DTP

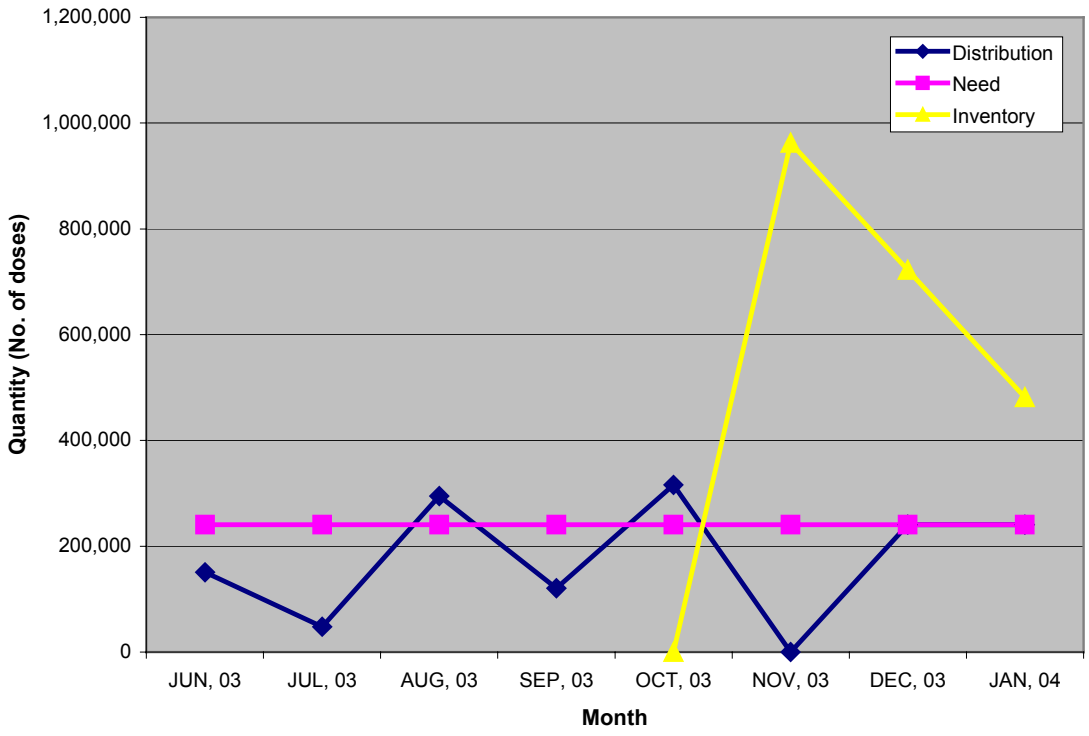


Table 30. Demand and Supply of BCG Vaccine

Month	Distribution	Need	Inventory
JUN, 03	173,000	56,164	
JUL, 03	67,000	56,164	
AUG, 03	288,000	56,164	
SEP, 03	130,240	56,164	
OCT, 03	0	56,164	224,657
NOV, 03	56,164	56,164	168,493
DEC, 03	56,164	56,164	112,329
JAN, 04	56,164	56,164	56,164

Figure 30. Demand and Supply of BCG

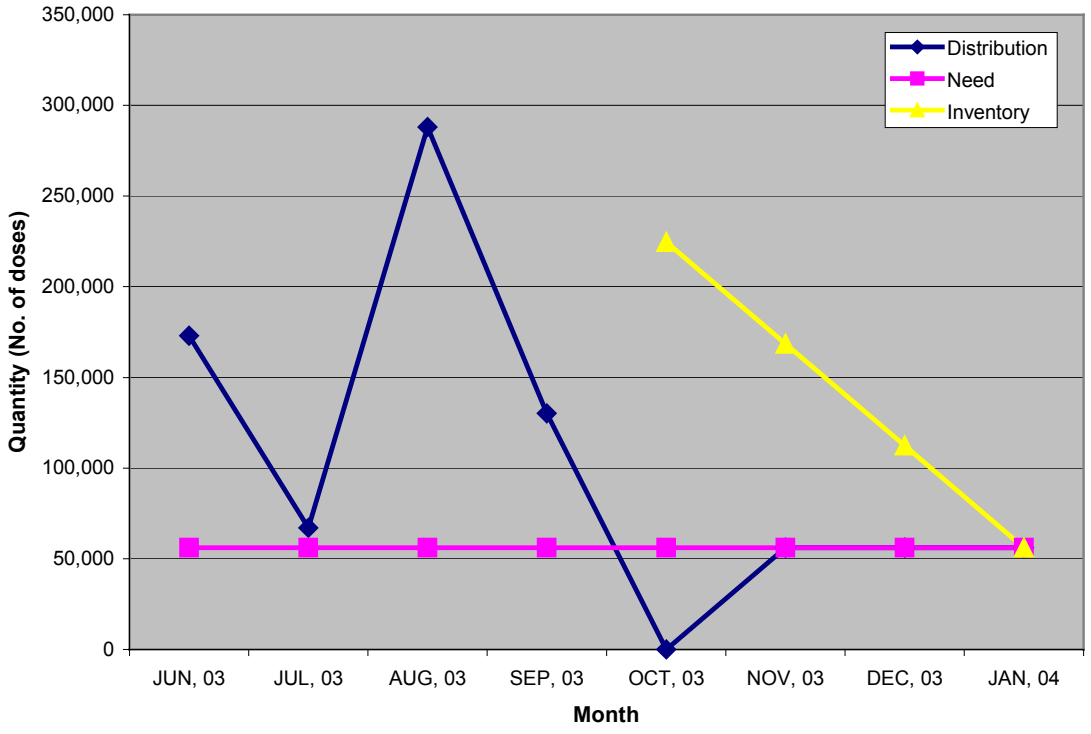


Table 31. Demand and Supply of Rabies Vaccine

Month	Distribution	Need	Inventory
JUN, 03	0	5,000	0
JUL, 03	0	5,000	0
AUG, 03	0	5,000	0
SEP, 03	0	5,000	0
OCT, 03	0	5,000	0
NOV, 03	0	5,000	0
DEC, 03	0	5,000	0
JAN, 04	5,000	5,000	20,000

Figure 31. Demand and Supply of Rabies Vaccine

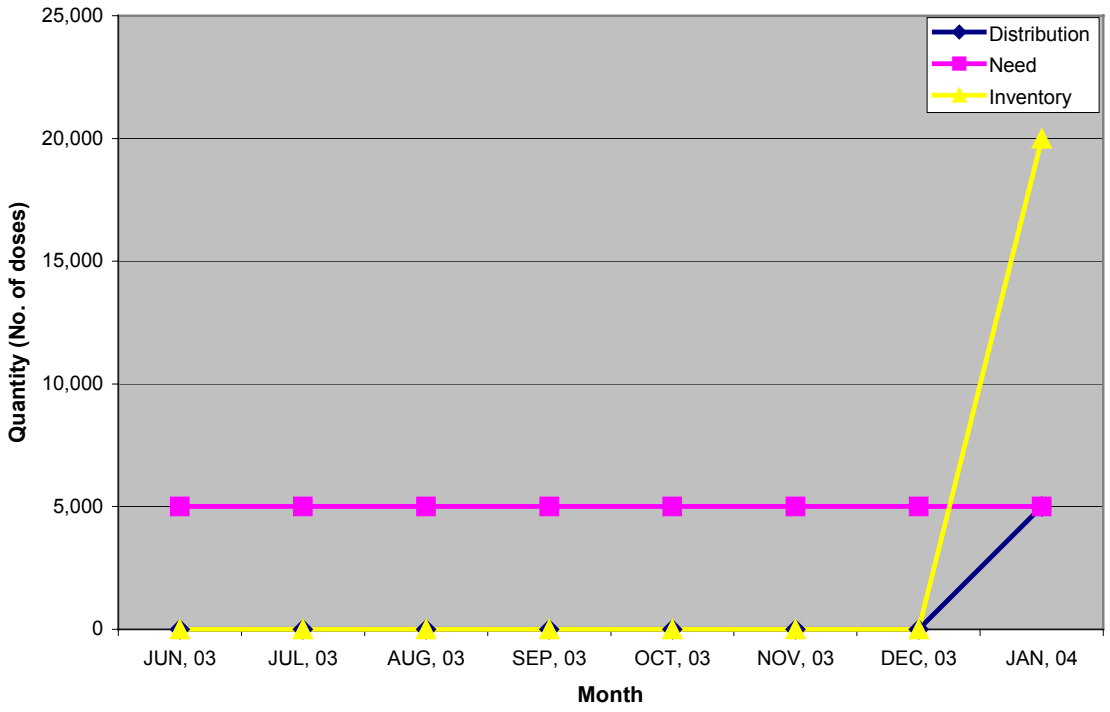
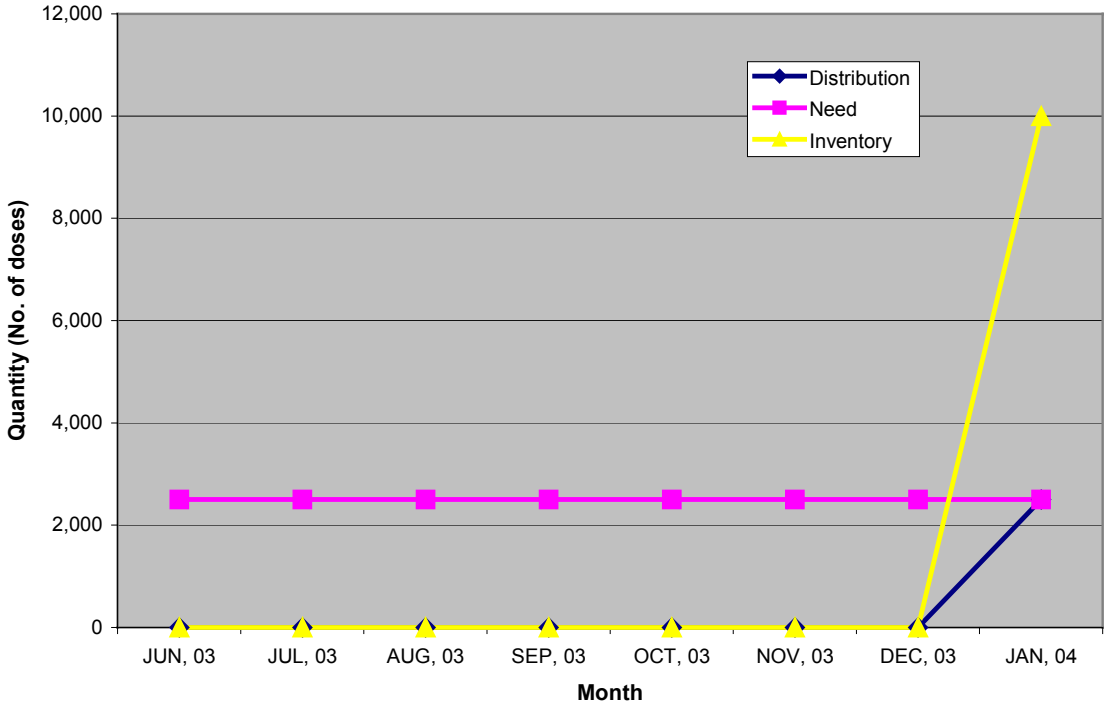


Table 32. Demand and Supply of Rabies Antiserum

Month	Distribution	Need	Inventory
JUN, 03	0	2,500	0
JUL, 03	0	2,500	0
AUG, 03	0	2,500	0
SEP, 03	0	2,500	0
OCT, 03	0	2,500	0
NOV, 03	0	2,500	0
DEC, 03	0	2,500	0
JAN, 04	2,500	2,500	10,000

Figure 32. Demand and Supply of Rabies Antiserum



Appendix 1. Risk Assessment Instruments

Form 1. The estimated annual demand (department of development)

Items	2002	2003	2004
Measles vaccine			
Oral polio vaccine (OPV)			
DTP vaccine			
BCG vaccine			
Rabies vaccine			
Rabies immunoglobuline			
Isosorbide dinitrate 10mg tab.			
Metformin 500mg tab.			
Metformin 850mg tab.			
Thyroxine 50mcg tab.			
Thyroxine 100mcg tab.			
Insulin Lente Vial			
Depakin 200mg tab.			
Depakine drops			
Clonazepam 0.5mg tab.			
Propranolol 40mg tab.			
Salbutamol Inhaler			
Cyclosporin cap 100mg			
Methotrexate 2.5 mg tab.			
Folinic acid 15mg tab.			
Benzathine penicillin 600000 U vial			
Benzathine penicillin 1200000 U vial			
Zovirax 200mg tab.			
Erythromycin suspension. 250mg/5ml			
Ciprofloxacillin 500 mg tab.			
Methyl prednisolone 40 mg vial			
Albendazole 200mg tab.			
Haloperidol 1.5 mg tab			
Anti D			
Adalat (Nifedipine), 10mg cap			
Glibenclamide 5mg tab.			

Form 2. The demand or requested quantity by month (department of distribution)

Items	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Measles vaccine													
Oral polio vaccine (OPV)													
DTP vaccine													
BCG vaccine													
Rabies vaccine													
Rabies antiserum													
Isosorbide dinitrate 10mg tab.													
Metformin 500mg tab.													
Metformin 850mg tab.													
Thyroxine 50mcg tab.													
Thyroxine 100mcg tab.													
Insulin Lente Vial													
Depakin 200mg tab.													
Depakine drops													
Clonazepam 0.5mg tab.													
Propranolol 40mg tab.													
Salbutamol Inhaler													
Cyclosporin 100mg Cap.													
Methotrexate tab 2.5 mg													
Folinic acid													
Benzathine penicillin 600000 U													
Benzathine penicillin 1200000 U													
Zovirax 200mg tab.													
Erythromycin suspension. 250mg/5ml													
Ciprofloxacillin tab 500 mg													
Methyl prednisolone 40 mg vial													
Albendazole 200mg tab.													
Haloperidol 1.5 mg tab													
Anti D													
Adalat (Nifedipine), 10mg cap													
Glibenclamide 5mg tab.													

Form 3. The supply (quantity distributed) by month (department of distribution)

Items	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	1. Date of drug availability 2. Number of months' inventory
Measles vaccine											
Oral polio vaccine (OPV)											
DTP vaccine											
BCG vaccine											
Rabies vaccine											
Rabies antiserum											
Isosorbide dinitrate 10mg tab.											
Metformin 500mg tab.											
Metformin 850mg tab.											
Thyroxine 50mcg tab.											
Thyroxine 100mcg tab.											
Insulin Lente Vial											
Depakin 200mg tab.											
Depakine drops											
Clonazepam 0.5mg tab.											
Propranolol 40mg tab.											
Salbutamol Inhaler											
Cyclosporin 100mg Cap.											
Methotrexate tab 2.5 mg											
Folinic acid											
Benzathine penicillin 600000 U											
Benzathine penicillin 1200000 U											
Zovirax 200mg tab.											
Erythromycin suspension. 250mg/5ml											
Ciprofloxacillin tab 500 mg											
Methyl prednisolone 40 mg vial											
Albendazole 200mg tab.											
Haloperidol 1.5 mg tab											
Anti D											
Adalat (Nifedipine), 10mg cap											
Glibenclamide 5mg tab.											